

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : NEW HA

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-0091 [NP-VE4/10F1900RNP51]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : 0.18~0.22 mm

BOSCH No.9 460 610 022

DKKC No. 104740-0111

Date : 20.Nov.1986 [0]

Company : MAZDA

No. SE0813000A

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 5.0~ 5.4 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.7~ 6.3 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,000 | 53.1~54.1 (cc/1,000st) | | 3.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 10.8~14.8 (cc/1,000st) | | 2.5 |
| 1-5 Start | 100 | Above 78.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,100 | 19.1~25.1 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.9~ 5.5 | 1,900 7.0~ 8.2 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 2.3~ 2.9 | 1,500 5.7~ 6.3 | 1,900 7.1~ 7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 53.0~97.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,000 | 52.6~54.6 | | |
| | 500 | 45.6~49.6 | | |
| | 1,500 | 50.3~54.3 | | |
| | 1,900 | 46.4~50.4 | | |
| | 2,100 | 19.1~25.1 | | |
| | 2,200 | Below 6.0 | | |

| | | | | |
|-----------------|------------------|----------------|--|--|
| Switch OFF | 350 | 0 | | |
| Idling position | 350 Below 620 | 10.8~14.8 0 | | |

| | |
|--------------|---|
| 2-5 Solenoid | Max.cut-in voltage : 16 V Test voltage : 24~26 V |
|--------------|---|

3. Dimensions

| | |
|---------------------|---------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.7~1.9 mm |
| BCS | — mm |
| Control lever angle | |
| α | 16.0~24.0 deg |
| A | 4.4~ 9.6 mm |
| β | 33.0~43.0 deg |
| B | 10.5~13.8 mm |
| Y | — deg |
| C | — mm |

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : NEW HA

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-0342 [NP-VE4/10F1900RNP51]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : 0.18~0.22 mm

BOSCH No.9 460 610 130

DKKC No. 104740-0112

Date : 20.Nov.1986 [0]

Company : MAZDA

No. SE0813800A

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 5.0~ 5.4 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.7~ 6.3 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,000 | 53.1~54.1 (cc/1,000st) | | 3.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 10.8~14.8 (cc/1,000st) | | 2.5 |
| 1-5 Start | 100 | Above 78.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,100 | 19.1~25.1 (cc/1,000st) | | 5.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.9~ 5.5 | 1,900 7.0~ 8.2 |
| 2-2 Supply pump | N = rpm kg/cm ² | 500 2.3~ 2.9 | 1,500 5.7~ 6.3 | 1,900 7.1~ 7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 53.0~97.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,000 | 52.6~54.6 | | |
| | 500 | 45.6~49.6 | | |
| | 1,500 | 50.3~54.3 | | |
| | 1,900 | 46.4~50.4 | | |
| | 2,100 | 19.1~25.1 | | |
| | 2,200 | Below 6.0 | | |

| | | | | |
|-----------------|------------------|----------------|--|--|
| Switch OFF | 350 | 0 | | |
| Idling position | 350 Below 620 | 10.8~14.8 0 | | |

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|

3. Dimensions

| | |
|---------------------|---------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.7~1.9 mm |
| BCS | — mm |
| Control lever angle | |
| α | 18.0~22.0 deg |
| A | 35.9~38.6 mm |
| β | 33.0~43.0 deg |
| B | 10.2~13.9 mm |
| Y | — deg |
| C | — mm |

B - 2**INJ. PUMP CALIBRATION DATA**
Distributor-typeTEST OIL:
I S O 4113 or
S A E J967d

MOTOR : NEW HA

Injection pump No: 104640-0343 (NP-VE4/10F1900RNP51)

Pump rotation : clockwise-viewed from drive side
Pre-stroke : 0.18~0.22 mm

BOSCH No.9 460 610 182

DKKC No. 104740-0113

Date : 20.Nov.1986 0

Company : MAZDA

No. SE0813800B

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 5.0~ 5.4 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.7~ 6.3 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,000 | 53.1~54.1 (cc/1,000st) | | 3.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 10.8~14.8 (cc/1,000st) | | 2.5 |
| 1-5 Start | 100 | Above 78.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,100 | 19.1~25.1 (cc/1,000st) | | 5.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|---|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.9~ 5.5 | 1,900 7.0~ 8.2 |
| 2-2 Supply pump | N = rpm kg/cm ² | 500 2.3~ 2.9 | 1,500 5.7~ 6.3 | 1,900 7.1~ 7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 53.0~97.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,000 | 52.6~54.6 | | |
| | 500 | 45.6~49.6 | | |
| | 1,500 | 50.3~54.3 | | |
| | 1,900 | 46.4~50.4 | | |
| | 2,100 | 19.1~25.1 | | |
| | 2,200 | Below 6.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 10.8~14.8 | | |
| | Below 620 | 0 | | |
| | | | | |
| 2-5 Solenoid | Max.cut-in voltage : 16 V Test voltage : 24~26 V | | | |

3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |
| Control lever angle | | |
| α | 18.0~22.0 | deg |
| A | 35.9~38.6 | mm |
| β | 33.0~43.0 | deg |
| B | 10.2~13.9 | mm |
| γ | — | deg |
| C | — | mm |

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Service Department3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
Tel. (03) 400-1551 · Fax: (03) 499-4115

INJ. PUMP CALIBRATION DATA

Distributor-type

ENGINE MODEL : C223T

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-1021 (NP-VE4/10F2150RNP259)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 100

DKKC No. 104740-1120

Date : 20.Nov.1986

Company : ISUZU

No. 894124 0578

For Test Condition see
Microfiche No.WP-210(N16)

104740-1120

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.5~ 3.9 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.6~ 5.0 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | | (cc/1,000st) | | |
| Full load delivery with charge air pressure | 1,250 | 47.8~48.8 (cc/1,000st) | 590~610 | 4.0 |
| 1-4 Idle speed regulation | 375 | 9.3~13.3 (cc/1,000st) | 0 | 2.0 |
| 1-5 Start | 100 | Above 60 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,550 | 19.9~25.9 (cc/1,000st) | 590~610 | 7.0 |
| 1-7 CSD Adjustment | 500~700 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.4~ 4.0 | 1,700 5.8~ 6.8 | 2,150 8.7~ 9.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 250 1.6~ 2.2 | 1,250 4.6~ 5.0 | 2,000 6.1~ 6.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 40.8~84.2 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 47.3~49.3 | 590~610 | |
| | 600 | 34.1~39.1 | 0 | |
| | 900 | 42.7~44.7 | 290~310 | |
| | 1,150 | 46.5~51.5 | 590~610 | |
| | 1,250 | 34.1~39.1 | 0 | |
| | 2,000 | 38.4~43.4 | 590~610 | |
| | 2,175 | 36.7~41.7 | 590~610 | |
| | 2,550 | 19.4~26.4 | 590~610 | |
| | 2,800 | Below 7 | 590~610 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 | 9.3~13.3 | 0 | |
| | 450 | Below 3 | 0 | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

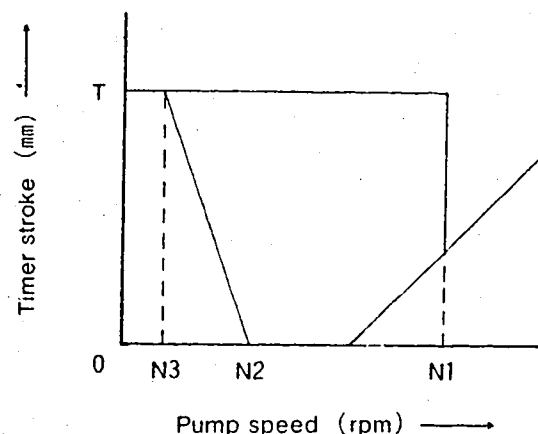
3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.5~1.7 mm |
| BCS | 3.4~3.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~27.0 deg |
| A | 9.2~11.0 mm |
| β | 37.0~47.0 deg |
| B | 12.0~15.0 mm |
| γ | — deg |
| C | — mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm
N2 Less than 280rpm
T 2.3~2.7mm

1) Bleed of air

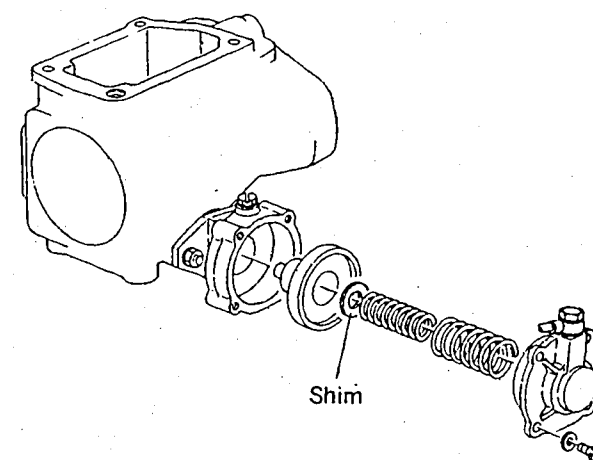
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : C223T

BOSCH No.9 460 610 101

DKKC No. 104740-1130

Date : 20.Nov.1986

Company : ISUZU

No. 894144 8490

For Test Condition see
Microfiche No.WP-210(N16)

Injection pump No: 104640-1021 (NP-VE4/10F2150RNP259)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

104740-1130

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.5~ 3.9 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.6~ 5.0 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | | (cc/1,000st) | | |
| Full load delivery with charge air pressure | 1,250 | 47.8~48.8 (cc/1,000st) | 590~610 | 4.0 |
| 1-4 Idle speed regulation | 375 | 9.3~13.3 (cc/1,000st) | 0 | 2.0 |
| 1-5 Start | 100 | Above 60 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,550 | 19.9~25.9 (cc/1,000st) | 590~610 | 7.0 |
| 1-7 CSD Adjustment | 500~700 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.4~ 4.0 | 1,700 5.8~ 6.8 | 2,150 8.7~ 9.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 250 1.6~ 2.2 | 1,250 4.6~ 5.0 | 2,000 6.1~ 6.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 40.8~84.2 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 47.3~49.3 | 590~610 | |
| | 600 | 34.1~39.1 | 0 | |
| | 900 | 42.7~44.7 | 290~310 | |
| | 1,150 | 46.5~51.5 | 590~610 | |
| | 1,250 | 34.1~39.1 | 0 | |
| | 2,000 | 38.4~43.4 | 590~610 | |
| | 2,175 | 36.7~41.7 | 590~610 | |
| | 2,550 | 19.4~26.4 | 590~610 | |
| | 2,800 | Below 7 | 590~610 | |
| | | | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 | 9.3~13.3 | 0 | |
| | 450 | Below 3 | 0 | |

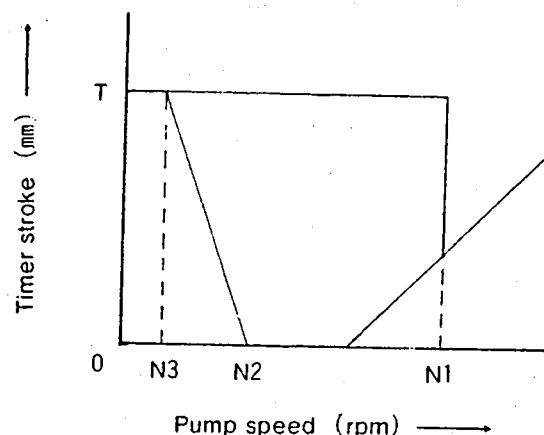
3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.5~1.7 mm |
| BCS | 3.4~3.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~27.0 deg |
| A | 9.2~11.0 mm |
| β | 37.0~47.0 deg |
| B | 12.0~15.0 mm |
| γ | — deg |
| C | — mm |

■ CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 280rpm

T 2.3~2.7mm

1) Bleed of air

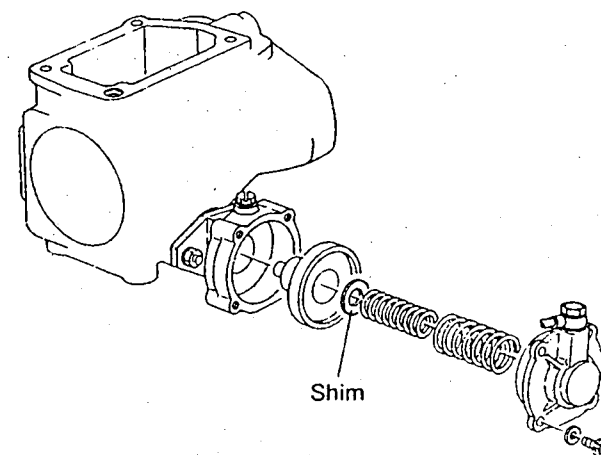
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600±100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA Distributor-type

ENGINE MODEL : C223T

BOSCH No.9 460 610 102

DKKC No. 104740-1140

Date : 20.Nov.1986

Company : ISUZU

No. 894144 8500

104740-1140

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-1021 [NP-VE4/10F2150RNP259]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.5~ 3.9 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.6~ 5.0 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | | | | |
| Full load delivery with charge air pressure | 1,250 | 47.8~48.8 (cc/1,000st) | 590~610 | 4.0 |
| 1-4 Idle speed regulation | 375 | 9.3~13.3 (cc/1,000st) | 0 | 2.0 |
| 1-5 Start | 100 | Above 60 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,550 | 19.9~25.9 (cc/1,000st) | 590~610 | 7.0 |
| 1-7 CSD Adjustment | 500~700 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.4~ 4.0 | 1,700 5.8~ 6.8 | 2,150 8.7~ 9.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 250 1.6~ 2.2 | 1,250 4.6~ 5.0 | 2,000 6.1~ 6.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 40.8~84.2 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,250 | 47.3~49.3 | 590~610 | |
| | 600 | 34.1~39.1 | 0 | |
| | 900 | 42.7~44.7 | 290~310 | |
| | 1,150 | 46.5~51.5 | 590~610 | |
| | 1,250 | 34.1~39.1 | 0 | |
| | 2,000 | 38.4~43.4 | 590~610 | |
| | 2,175 | 36.7~41.7 | 590~610 | |
| | 2,550 | 19.4~26.4 | 590~610 | |
| | 2,800 | Below 7 | 590~610 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 450 | 9.3~13.3 Below 3 | 0 0 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

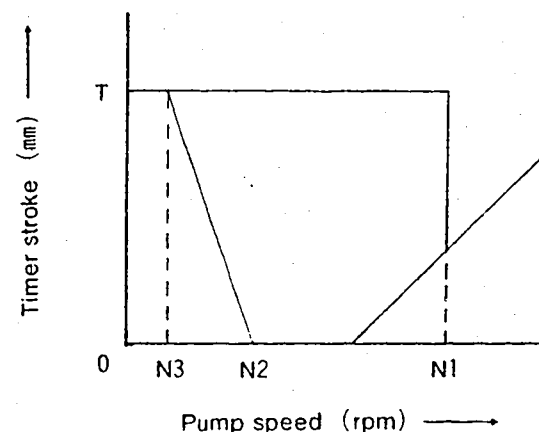
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | 3.4~3.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~27.0 | deg |
| A | 9.2~11.0 | mm |
| β | 37.0~47.0 | deg |
| B | 12.0~15.0 | mm |
| γ | — | deg |
| C | — | mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 280rpm

T 2.3~2.7mm

1) Bleed of air

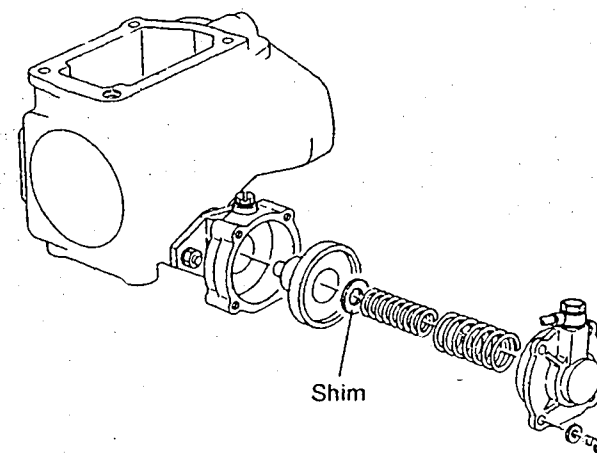
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600±100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : LD20T

BOSCH No.9 460 610 103

DKKC No. 104740-2041

Date : 20.Nov.1986

Company : NISSAN

No. 16700 08E10

Injection pump No: 104640-2041 [NP-VE4/10F2400RMP201]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 900 | 2.3~2.9 (mm) | 245~265 | 2.5 |
| 1-2 Supply pump pressure | 900 | 2.9~3.5 (kg/cm ²) | 245~265 | |
| 1-3 Full load delivery without charge air pressure | 600 | 29.9~30.9 (cc/1,000st) | | |
| Full load delivery without charge air pressure | 900 | 37.0~38.0 (cc/1,000st) | | 3.0 |
| 1-4 Idle speed regulation | 325 | 4.5~7.5 (cc/1,000st) | | |
| 1-5 Start | 100 | 40.0~50.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 6.7~12.7 (cc/1,000st) | 500~520 | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|---------|---------|
| 2-1 Timing device | N = rpm | 900 | 1,200 | 2,400 |
| | mm | 2.2~3.0 | 3.6~4.8 | 8.9~9.8 |
| 2-2 Supply pump | N = rpm | 900 | 1,200 | 2,400 |
| | kg/cm ² | 2.8~3.6 | 3.4~4.2 | 6.5~7.3 |
| 2-3 Overflow delivery | N = rpm | 1,000 | | |
| | cc/10s | 36.0~80.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 600 | 29.4~31.4 | 0 | |
| | 900 | 36.5~38.5 | 245~265 | |
| | 2,200 | 35.0~40.0 | 500~520 | |
| | 2,700 | 6.2~13.2 | 500~520 | |
| | 2,800 | Below 6 | 500~520 | |

| | | | | |
|-----------------|-----|-----|--|--|
| Switch OFF | 325 | 0 | | |
| Idling position | 325 | 4.8 | | |

| | | | | |
|--------------|-----|------|---------|--|
| Partial load | 900 | 7~17 | 245~267 | |
|--------------|-----|------|---------|--|

| | |
|--------------|--------------------------|
| 2-5 Solenoid | Max.cut-in voltage : 8 V |
| | Test voltage : 12~14 V |

3. Dimensions

| | | |
|-----|-----------|----|
| K | 3.2~3.4 | mm |
| KF | 5.65~5.85 | mm |
| MS | 0.4~0.6 | mm |
| BCS | 3.9~4.1 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 7.6~11.7 | mm |
| β | 36.0~46.0 | deg |
| B | 11.2~14.6 | mm |
| γ | 10.5~11.5 | deg |
| C | 5.7~6.3 | mm |

W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

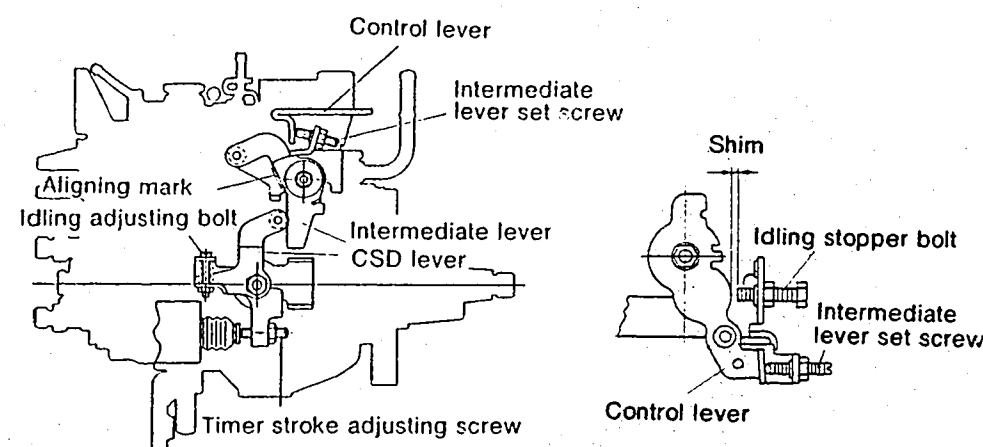


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 0.9 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Notes :

1. The temperature of the wax must be below 30°C when adjusting.
2. When inserting a block gauge (thickness gauge) between the control lever (beacket) and the idling stopper bolt, use the idling adjusting bolt to separate the CSD lever and intermediate lever so that no excessive force is exerted on them.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0367t + 1.284$

When $20 \leq t \leq 40$: $T = -0.0275t + 1.1$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $\ell = -0.0467t + 2.253$

When $20 \leq t \leq 30$: $\ell = -0.0553t + 2.0664$

When $30 \leq t \leq 40$: $\ell = -0.0148t + 0.8505$

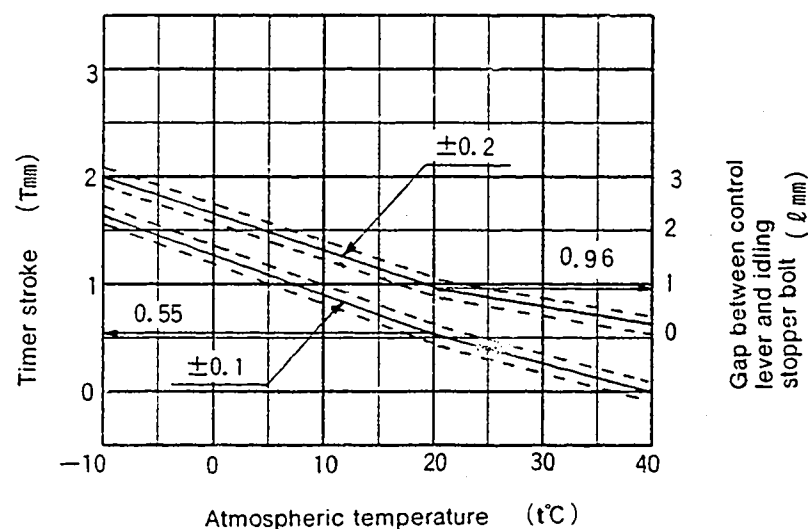
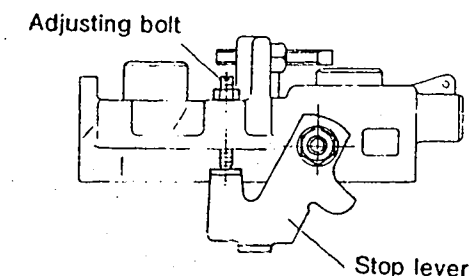


Fig. 2

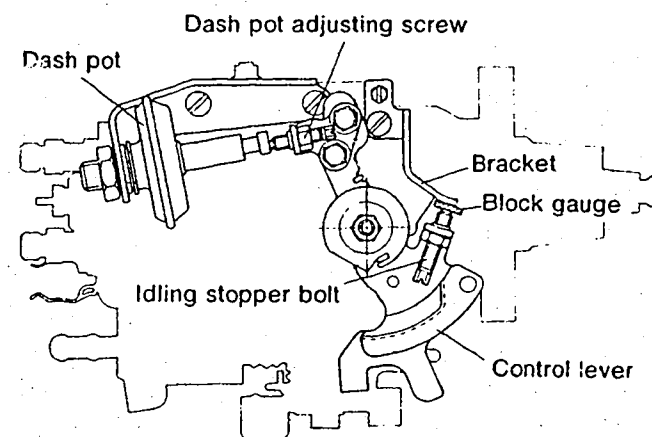
Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



DASH POT ADJUSTMENT

- ① Insert a block gauge (thickness gauge) of thickness 3.8 ± 0.05 in the gap between the control lever and the idling stopper bolt.
- ② With the control lever positioned as described in ① above, adjust the Dashpot adjusting screw so that the Dashpot adjusting screw and the push rod are in contact. Fix using the nut.



INJ. PUMP CALIBRATION DATA **Distributor-type**

MOTOR : CD17T

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-2051 (NP-VE4/10F2400LNP210)

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 125

DKKC No. 104740-2051

Date : 20.Nov.1986 1

Company : NISSAN

No. 16700 D2700

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|------------|---|---------------------|--------------------------------|---------------------------|-------------------------------|
| 1-1 | Timing device travel | 1,000 | 1.7~ 2.3 (mm) | 310~330 | 2.5 |
| 1-2 | Supply pump pressure | 1,000 | 2.6~ 3.2 (kg/cm ²) | 310~330 | |
| 1-3 | Full load delivery without charge air pressure | 600 | 25.3~26.3 (cc/1,000st) | 0 | |
| | Full load delivery with charge air pressure | 800 | 28.1~29.1 (cc/1,000st) | 140~160 | 3.0 |
| 1-4 | Idle speed regulation | 400 | 5.3~ 8.3 (cc/1,000st) | | |
| 1-5 | Start | 100 | 42.8~52.8 (cc/1,000st) | | |
| 1-6 | Full-load speed regulation | 2,700 | 9.5~15.5 (cc/1,000st) | 540~560 | |
| 1-7 | | | | | |
| 1-8 | | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.4 | 1,800 4.7~ 5.9 | 2,400 6.1~ 7.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 2.5~ 3.3 | 1,800 4.3~ 5.1 | 2,400 5.7~ 6.5 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 36.0~80.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 24.8~26.8 | 0 | |
| | 800 | 27.6~29.6 | 140~160 | |
| | 2,400 | 32.9~37.9 | 540~560 | |
| | 2,700 | 9.0~16.0 | 540~560 | |
| | 2,800 | Below 6.0 | 540~560 | |
| Switch OFF | 400 | 0 | 0 | |
| Idling position | 400 | 4.8~8.8 | 0 | |
| Partial load | 800 | 12.5~22.5 | 0 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.9~1.1 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 20.0~28.0 deg |
| A | 3.2~ 8.3 mm |
| β | 39.0~49.0 deg |
| B | 11.5~15.5 mm |
| γ | 10.5~11.5 deg |
| C | 6.7~ 7.3 mm |

○ Note

■ After adjustment of full load fuel injection quantity (600rpm) , set the boost pressure at 140~160 mmHg or — kg/cm², and at pump speed of 800 rpm adjust the fuel injection quantity using the BCS spring set screw.

■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

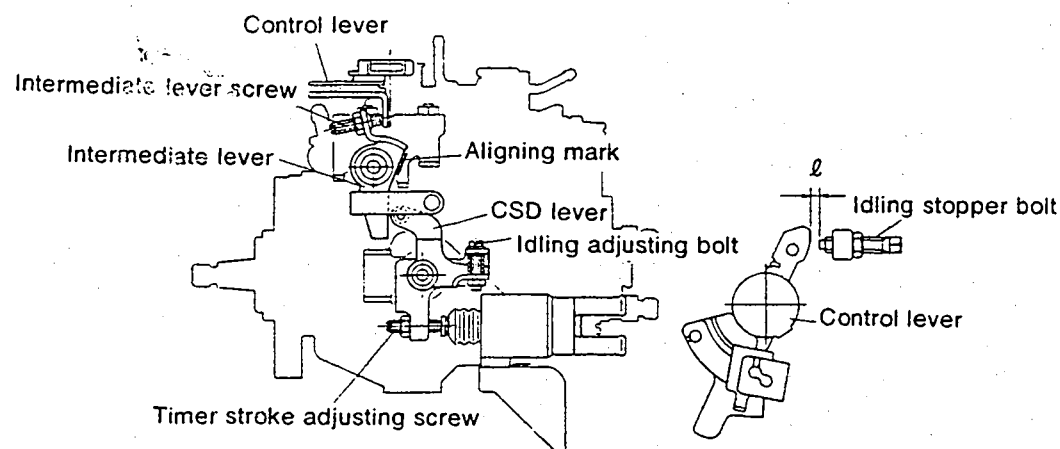


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.9 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

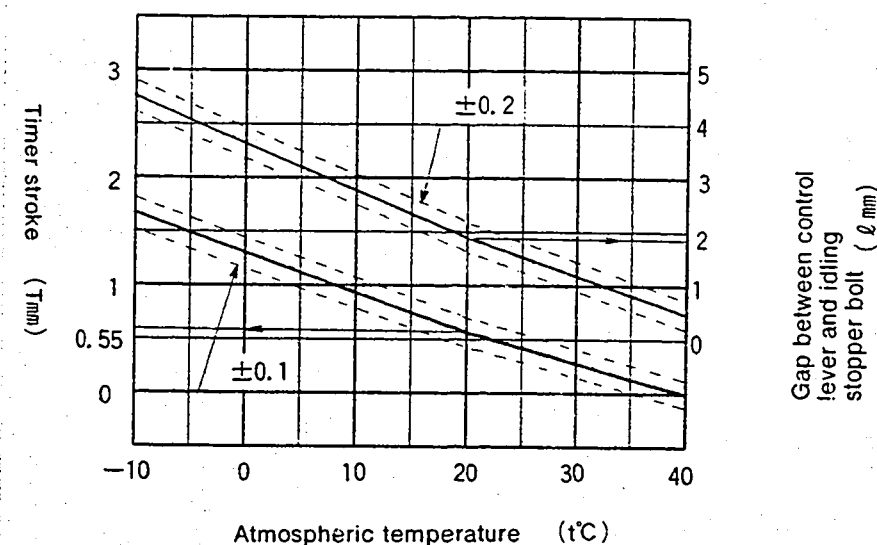
When $-10 \leq t \leq 20$: $T = -0.0367t + 1.284$

When $20 \leq t \leq 40$: $T = -0.0275t + 1.1$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0867t + 3.63$

When $20 \leq t \leq 40$: $l = -0.075t + 3.4$



INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : LD20T

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-2060 (NP-VE4/10F2400RNP408)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 132

DKKC No. 104740-2060

Date : 20.Nov.1986 ①

Company : NISSAN

No. 1670013C00

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 900 | T=1.0~1.4 (mm) | 255~275 | 2.5 |
| 1-2 Supply pump pressure | 900 | 3.2~3.8 (kg/cm ²) | 255~275 | |
| 1-3 Full load delivery without charge air pressure | 600 | 29.7~30.7 (cc/1,000st) | 0 | |
| Full load delivery with charge air pressure | 900 | 39.5~40.5 (cc/1,000st) | 255~275 | 2.5 |
| 1-4 Idle speed regulation | 325 | 4.1~7.1 (cc/1,000st) | 0 | |
| 1-5 Start | 100 | 40.0~50.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,700 | 6.7~12.7 (cc/1,000st) | 474~494 | |
| 1-7 Load-timer Adjustment | 900 | T=0.65±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 900 0.9~1.5 | 1,200 2.8~3.6 | 2,400 8.1~9.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 900 3.1~3.9 | 1,200 3.8~4.6 | 2,400 6.9~7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 900 41.0~86.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 29.2~31.2 | 0 | |
| | 900 | 39.0~41.0 | 255~275 | |
| | 2,200 | 34.8~38.8 | 490~510 | |
| | 2,700 | 5.2~12.2 | 474~494 | |
| | 2800 | Below 6.0 | 474~494 | |
| Switch OFF | 325 | 0 | 0 | |
| Idling position | 325 | 3.6~7.6 | 0 | |
| | 500 | Below 3.0 | 0 | |
| Partial load | 900 | 2.0~12.0 | 255~275 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|--------------|
| K | 3.20~3.40 mm |
| KF | 5.65~5.85 mm |
| MS | 0.80~1.00 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | 4.3~9.6 mm |
| β | 36.0~46.0 deg |
| B | 10.9~14.6 mm |
| γ | 10.5~11.5 deg |
| C | 6.9~7.5 mm |

○ Note

- After adjustment of full load fuel injection quantity (600rpm), set the boost pressure at 255~275 mmHg or — kg/cm², and at pump speed of 900 rpm adjust the fuel injection quantity using the BCS spring set screw.

■ LOAD TIMER ADJUSTMENT

1) Adjustment

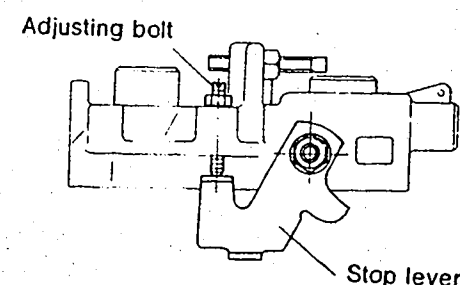
- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg
Pump Speed : 900 rpm
Fuel Injection : 17±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

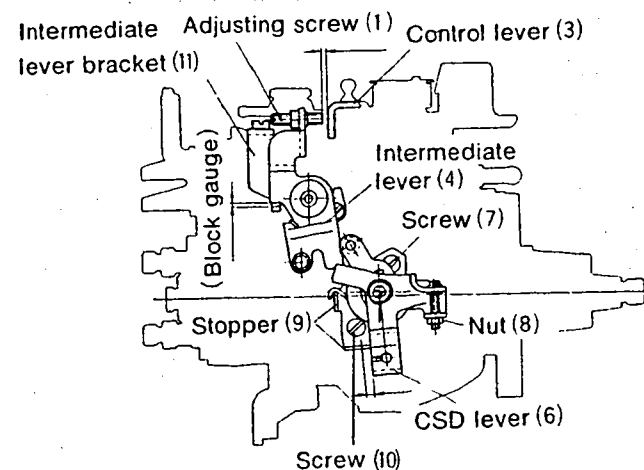
■ Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



■ M-CSD Adjustment

- 1) Fix the intermediate lever adjustment screw in position. (Adjust with the M-CSD released)
 1. Hold the control lever (3) in the idling position.
 2. Move the adjusting screw to a horizontal position.
 3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is $1 \sim 2$ mm, and then fix using the nut.



2) Fixing the M-CSD stopper (9)

1. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
2. Move the CSD lever (6) to the advance side.
3. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
4. Move the CSD lever to the advance side.
5. Then, adjust the position of the stopper (9) so that the timer stroke is 1.2 ± 0.2 mm, and fix the stopper (9) using the screw (10).

3) Screw (7) Adjustment

1. Fix the control lever in the idling position.
2. Move the CSD lever to the advance side.
3. Then, adjust the screw (7) so that the clearance between the control lever and the idling stopper bolt is 7.2 ± 0.5 mm, and fix the screw (7) using the nut (8).

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : LD20T

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104640-2070 [NP-VE4/10F2400RNP409]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 133

DKKC No. 104740-2070

Date : 20.Nov.1986 [Q]

Company : NISSAN

No. 1670013C10

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 900 | T=1.0~ 1.4 (mm) | 255~275 | |
| 1-2 Supply pump pressure | 900 | 3.2~ 3.8 (kg/cm ²) | 255~275 | |
| 1-3 Full load delivery without charge air pressure | 600 | 29.7~30.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 900 | 39.5~40.5 (cc/1,000st) | 255~275 | |
| 1-4 Idle speed regulation | 325 | 4.1~ 7.1 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 40.0~50.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,700 | 6.7~12.7 (cc/1,000st) | 474~494 | |
| 1-7 Load-timer Adjustment | 900 | T=0.65±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 900 0.5~ 1.5 | 1,200 2.8~ 3.6 | 2,400 8.1~ 9.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 900 3.1~ 3.9 | 1,200 3.8~ 4.6 | 2,400 6.9~ 7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 900 41.0~86.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 29.2~31.2 | 0 | |
| | 900 | 39.0~41.0 | 255~275 | |
| | 2,200 | 34.8~38.8 | 490~510 | |
| | 2,700 | 5.2~12.2 | 474~494 | |
| | 2800 | Below 6.0 | 474~494 | |
| Switch OFF | 325 | 0 | 0 | |
| Idling position | 325 | 3.6~7.6 | 0 | |
| | 500 | Below 3.0 | 0 | |
| Partial load | 900 | 2.0~12.0 | 255~275 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|--------------|
| K | 3.20~3.40 mm |
| KF | 5.65~5.85 mm |
| MS | 0.80~1.00 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | 4.3~ 9.6 mm |
| β | 36.0~46.0 deg |
| B | 10.9~14.6 mm |
| γ | 10.5~11.5 deg |
| C | 6.9~ 7.5 mm |

○ Note

- After adjustment of full load fuel injection quantity (600rpm) , set the boost pressure at 255~275 mmHg or — kg/cm², and at pump speed of 900 rpm adjust the fuel injection quantity using the BCS spring set screw.

■ LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

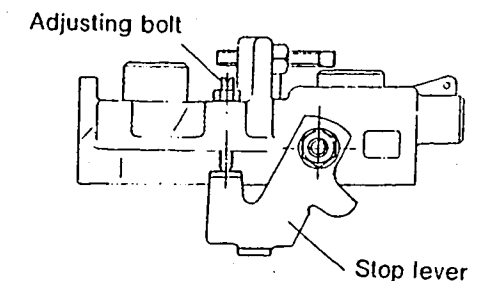
Pump Speed : 900 rpm

Fuel Injection : 17±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

■ Starting Injection Quantity Adjustment

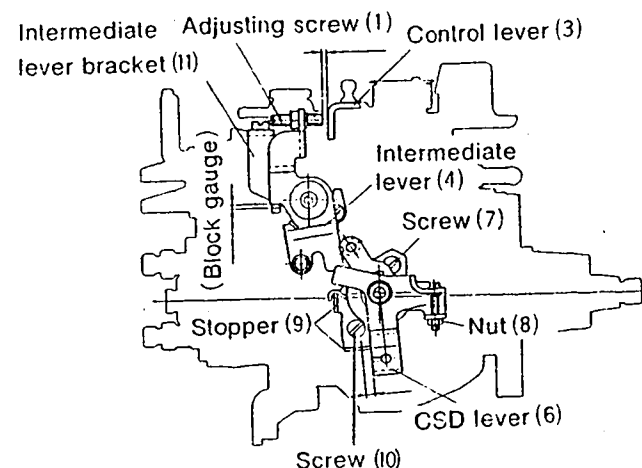
Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right) .



■ M-CSD Adjustment

1) Fix the intermediate lever adjustment screw in position. (Adjust with the M-CSD released)

1. Hold the control lever (3) in the idling position.
2. Move the adjusting screw to a horizontal position.
3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is $1 \sim 2 \text{ mm}$, and then fix using the nut.



2) Fixing the M-CSD stopper (9)

1. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
2. Move the CSD lever (6) to the advance side.
3. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
4. Move the CSD lever to the advance side.
5. Then, adjust the position of the stopper (9) so that the timer stroke is $1.2 \pm 0.2 \text{ mm}$, and fix the stopper (9) using the screw (10).

3) Screw (7) Adjustment

1. Fix the control lever in the idling position.
2. Move the CSD lever to the advance side.
3. Then, adjust the screw (7) so that the clearance between the control lever and the idling stopper bolt is $7.2 \pm 0.5 \text{ mm}$, and fix the screw (7) using the nut (8).

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : LD20T

Injection pump No: 104640-2080 [NP-VE4/10F2400RNP434]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/4
BOSCH No.9 460 610 204
DKKC No. 104740-2080
Date : 20.Nov.1986 [0]
Company : NISSAN
No. 16700 06N00

For Test Condition see
Microfiche No.WP-210(N16)

104740-2080 2/4

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 900 | 1.0~ 1.4 (mm) | 255~275 | |
| 1-2 Supply pump pressure | 900 | 3.2~ 3.8 (kg/cm ²) | 255~275 | |
| 1-3 Full load delivery without charge air pressure | 600 | 29.7~30.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 900 | 39.5~40.5 (cc/1,000st) | 255~275 | |
| 1-4 Idle speed regulation | 325 | 4.1~ 7.1 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 40.0~50.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,700 | 6.7~12.7 (cc/1,000st) | 474~494 | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 900 0.9~ 1.5 | 1,200 2.8~ 3.6 | 2,400 8.1~ 9.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 900 3.1~ 3.9 | 1,200 3.8~ 4.6 | 2,400 6.9~ 7.7 |
| 2-3 Overflow delivery | N = rpm cc/10s | 900 41.0~36.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 29.2~31.2 | 0 | |
| | 900 | 39.0~41.0 | 255~275 | |
| | 2,200 | 34.8~38.8 | 490~510 | |
| | 2,700 | 5.2~12.2 | 474~494 | |
| | 2800 | Below 6.0 | 474~494 | |
| Switch OFF | 325 | 0 | | |
| Idling position | 325 | 3.6~7.6 | | |
| | 500 | Below 3.0 | | |
| Partial load | 900 | 2.0~12.0 | 255~275 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

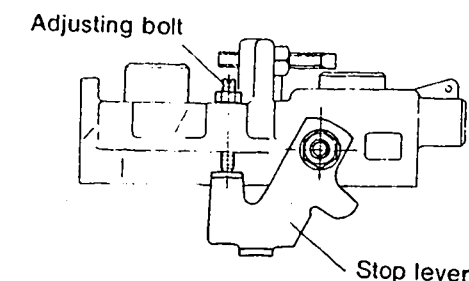
| | |
|---------------------|---------------|
| K | 3.20~3.40 mm |
| KF | 5.65~5.85 mm |
| MS | 0.80~1.00 mm |
| BCS | — mm |
| Control lever angle | |
| α | 21.0~29.0 deg |
| A | 4.3~ 9.6 mm |
| β | 36.0~46.0 deg |
| B | 10.9~14.6 mm |
| γ | 10.5~11.5 deg |
| C | 6.9~ 7.5 mm |

○ Note

■ After adjustment of full load fuel injection quantity (600rpm), set the boost pressure at 255~275 mmHg or — kg/cm², and at pump speed of 900 rpm adjust the fuel injection quantity using the BCS spring set screw.

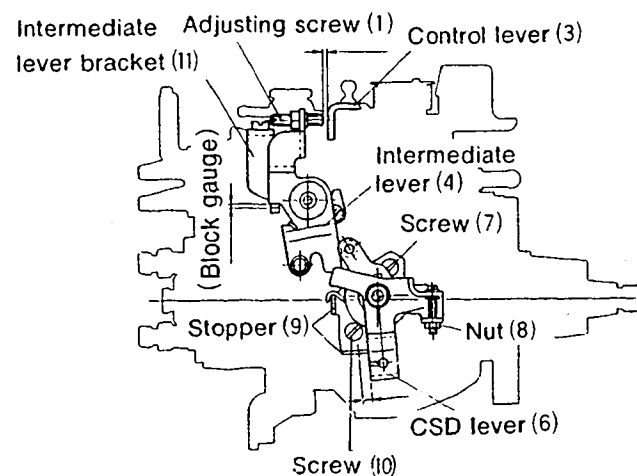
Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



■ M-CSD Adjustment

- 1) Fix the intermediate lever adjustment screw in position. (Adjust with the M-CSD released)
 1. Hold the control lever (3) in the idling position.
 2. Move the adjusting screw to a horizontal position.
 3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is $1 \sim 2$ mm, and then fix using the nut.



2) Fixing the M-CSD stopper (9)

1. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
2. Move the CSD lever (6) to the advance side.
3. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
4. Move the CSD lever to the advance side.
5. Then, adjust the position of the stopper (9) so that the timer stroke is 1.2 ± 0.2 mm, and fix the stopper (9) using the screw (10).

3) Screw (7) Adjustment

1. Fix the control lever in the idling position.
2. Move the CSD lever to the advance side.
3. Then, adjust the screw (7) so that the clearance between the control lever and the idling stopper bolt is 7.2 ± 0.5 mm, and fix the screw (7) using the nut (8).

INJ. PUMP CALIBRATION DATA

TEST OIL:
ISO 4113 or
SAE J967d

Distributor-type

MOTOR : 4D55T

BOSCH No.9 460 610 032

DKKC No. 104740-3090

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD060177

104740-3090

Injection pump No: 104640-3060 [NP-VE4/10F2100RNP149]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~ 1.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|-----------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 850 1.1~ 1.5 | 1,750 6.1~ 7.3 | 2,100 7.8~ 8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 58~102 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 600 | 32.2~34.2 | 0 | |
| | 750 | 35.7~37.7 | 100~120 | |
| | 1,250 | 49.3~53.3 | 468~488 | |
| | 2,100 | 42.8~47.8 | 615~635 | |
| | 2,650 | 18.1~26.1 | 615~635 | |
| | 3,050 | Below 10 | 615~635 | |

| | | | | |
|-----------------|-----|----------|--|--|
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.4~10.4 | | |

| | | | | |
|--------------|-----|-----------|--|--|
| Partial load | 600 | 14.5~26.5 | | |
|--------------|-----|-----------|--|--|

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.8~1.0 mm |
| BCS | 4.4~4.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | — mm |
| β | 41.0~51.0 deg |
| B | — mm |
| γ | 11.5~12.5 deg |
| C | — mm |

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.



DIESEL KIKI

DIESEL KIKI CO., LTD.
Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
Tel. (03) 400-1551-Fax: (03) 499-4115

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : 4D55T

Injection pump No: 104640-3060 [NP-VE4/10F2100RNP149]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 035

DKKC No. 104740-3210

Date : 20.Nov.1986 0

Company : MITSUBISHI

No. MD 064705

For Test Condition see
Microfiche No.WP-210(N16)

104740-3210

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~ 1.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 850 1.1~ 1.5 | 1,750 6.1~ 7.3 | 2,100 7.8~ 8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 58~102 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 32.2~34.2 | 0 | |
| | 750 | 35.7~37.7 | 100~120 | |
| | 1,250 | 49.3~53.3 | 468~488 | |
| | 2,100 | 42.8~47.8 | 615~635 | |
| | 2,650 | 18.1~26.1 | 615~635 | |
| | 3,050 | Below 10 | 615~635 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.4~10.4 | | |
| Partial load | 600 | 14.5~26.5 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.8~1.0 mm |
| BCS | 4.4~4.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | mm |
| β | 41.0~51.0 deg |
| B | mm |
| γ | 11.5~12.5 deg |
| C | mm |

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

INJ. PUMP CALIBRATION DATA

Distributor-type

ENGINE MODEL : 4D55T

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104640-3060 (NP-VE4/10F2100RNP149)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 036

DKKC No. 104740-3220

Date : 20.Nov.1986 ①

Company : MITSUBISHI

No. MD 064706

For Test Condition see
Microfiche No.WP-210(N16)

104740-3220

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~ 1.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load deliver, with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|-----------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 850 1.1~ 1.5 | 1,750 6.1~ 7.3 | 2,100 7.8~ 8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 58~102 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|--|----------------------------|------------------------|----------------------------|
| Full speed position | 600 | 32.2~34.2 | 0 | |
| | 750 | 35.7~37.7 | 100~120 | |
| | 1,250 | 49.3~53.3 | 468~488 | |
| | 2,100 | 42.8~47.8 | 615~635 | |
| | 2,650 | 18.1~26.1 | 615~635 | |
| | 3,050 | Below 10 | 615~635 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.4~10.4 | | |
| Partial load | 600 | 14.5~26.5 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | | mm |
| β | 41.0~51.0 | deg |
| B | | mm |
| γ | 11.5~12.5 | deg |
| C | | mm |

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

INJ. PUMP CALIBRATION DATA**Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : 4D55T

Injection pump No: 104640-3011 [NP-VE4/10F2100RNP30]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 037

DKKC No. 104740-3250

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD067627

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | Solenoid Timer | ON | OFF |
|-------------------------------|--|----------------------------|------------------------|
| 2-1 Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 95~148 | 2,100 6.5~ 7.1 |
| 2-4 Fuel injection quantities | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) |
| Full speed position | 600 | 32.2~34.2 | 0 |
| | 750 | 35.7~37.7 | 100~120 |
| | 1,250 | 49.5~53.3 | 468~488 |
| | 2,100 | 42.8~47.8 | 615~635 |
| | 2,650 | 18.1~26.1 | 615~635 |
| | 3,050 | Below 10 | 615~635 |
| Switch OFF | 375 | 0 | |
| Idling position | 600 | Below 3 | |
| | 375 | 6.4~10.4 | |
| Partial load | 600 | 14.5~26.5 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.8~1.0 mm |
| BCS | 4.4~4.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | — mm |
| β | 41.0~51.0 deg |
| B | — mm |
| γ | 11.5~12.5 deg |
| C | — mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF five or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.

■ Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

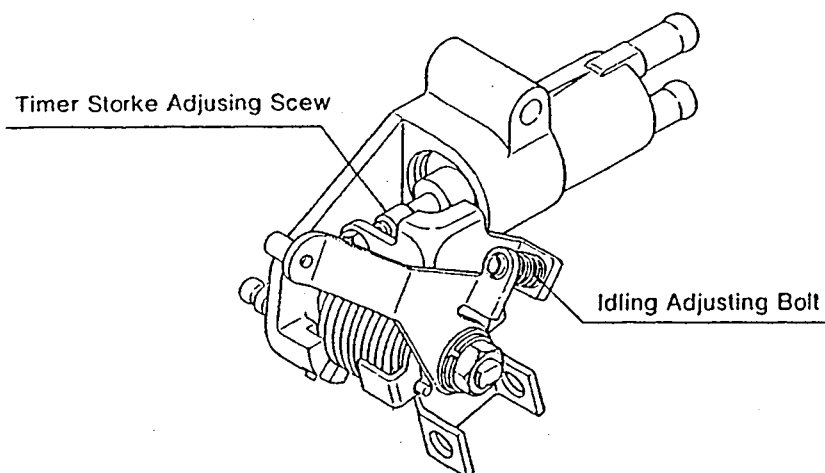


Fig. 1

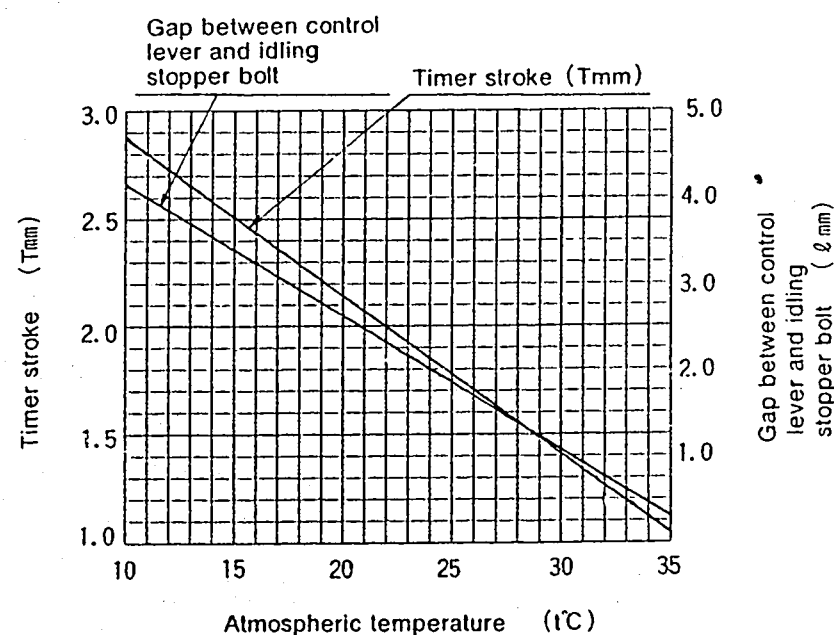


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : 4D55T

Injection pump No: 104640-3011 [NP-VE4/10F2100RNP30]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/4
BOSCH No.9 460 610 038

DKKC No. 104740-3260

Date : 20.Nov.1986 ☐

Company : MITSUBISHI

No. MD067628

For Test Condition see
Microfiche No.WP-210(N16)

104740-3260 2/4

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | | Solenoid Timer | ON | | OFF |
|-------------------------------|--|-------------------------------|------------------------|----------------------------|--|
| 2-1 | Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 | 2,100 9.9~10.7 1,750 4.8~ 6.0 |
| 2-2 | Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 | Overflow delivery | N = rpm cc/10s | 1,250 95~148 | | |
| 2-4 Fuel injection quantities | | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| Full speed position | 600 | 32.2~34.2 | 0 | | |
| | 750 | 35.7~37.7 | 100~120 | | |
| | 1,250 | 49.3~53.3 | 468~488 | | |
| | 2,100 | 42.8~47.8 | 615~635 | | |
| | 2,650 | 18.1~26.1 | 615~635 | | |
| | 3,050 | Below 10 | 615~635 | | |
| Switch OFF | 375 | 0 | | | |
| Idling position | 600 | Below 3 | | | |
| | 375 | 6.4~10.4 | | | |
| Partial load | 600 | 14.5~26.5 | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | | |

| 3. Dimensions | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF five or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.

■ Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

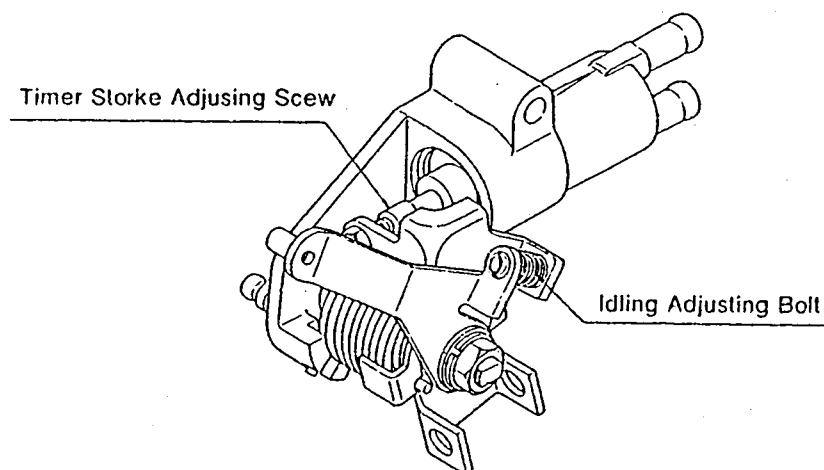


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

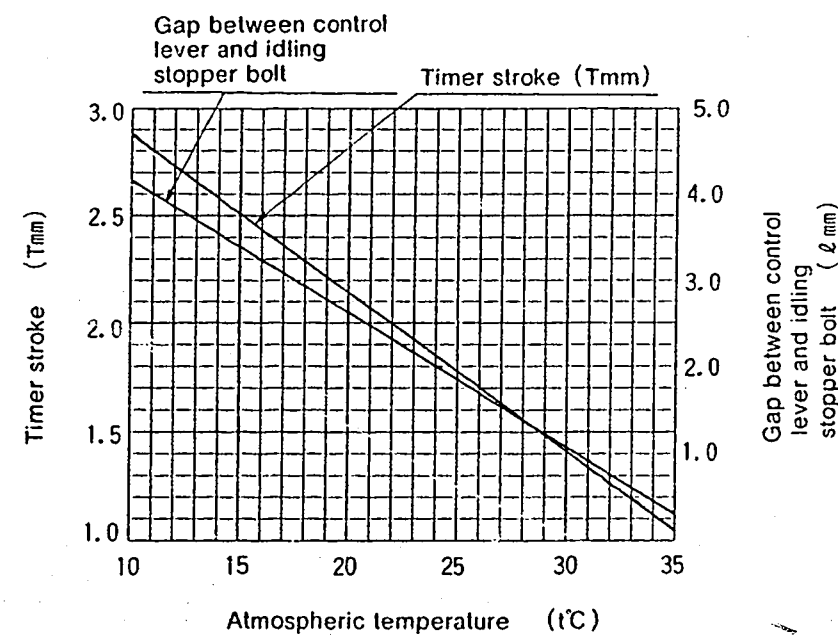


Fig. 2

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : 4D55T

Injection pump No: 104640-3031 (NP-VE4/10F2100RNP76)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 039

DKKC No. 104740-3270

Date : 20.Nov.1986 ①

Company : MITSUBISHI

No. MD067629

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | | Solenoid Timer | ON | | OFF |
|-------------------------------|--------------------------|----------------------------|------------------------|----------------------------|--|
| 2-1 | Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 | 2,100 9.9~10.7 1,750 4.8~ 6.0 |
| 2-2 | Supply pump | N = rpm kg/cm² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 | Overflow delivery | N = rpm cc/10s | 1,250 95~148 | | |
| 2-4 Fuel injection quantities | | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| Full speed position | 600 | 32.2~34.2 | 0 | | |
| | 750 | 35.7~37.7 | 100~120 | | |
| | 1,250 | 49.3~53.3 | 468~488 | | |
| | 2,100 | 42.8~47.8 | 615~635 | | |
| | 2,650 | 18.1~26.1 | 615~635 | | |
| | 3,050 | Below 10 | 615~635 | | |
| Switch OFF | 375 | 0 | | | |
| Idling position | 600 | Below 3 | | | |
| | 375 | 6.4~10.4 | | | |
| Partial load | 600 | 14.5~26.5 | | | |
| 2-5 | Max.cut-in voltage : 8 V | | | | |
| Solenoid | Test voltage : 12~14 V | | | | |

| 3. Dimensions | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF live or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.

■ Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

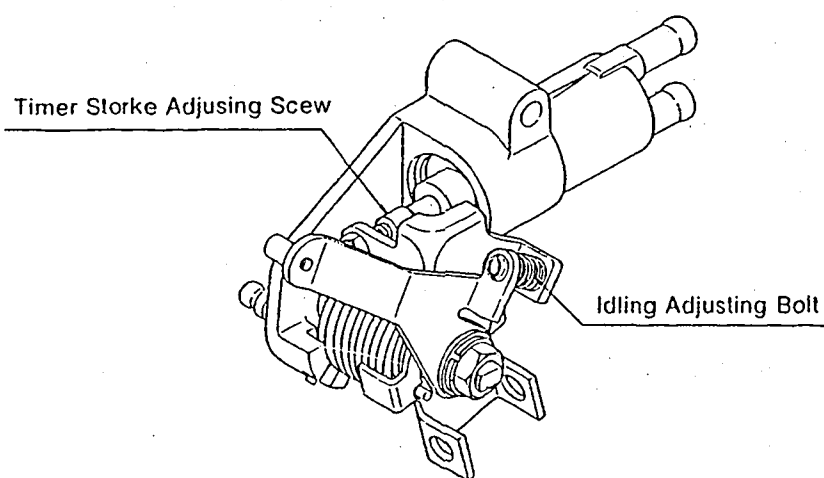


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

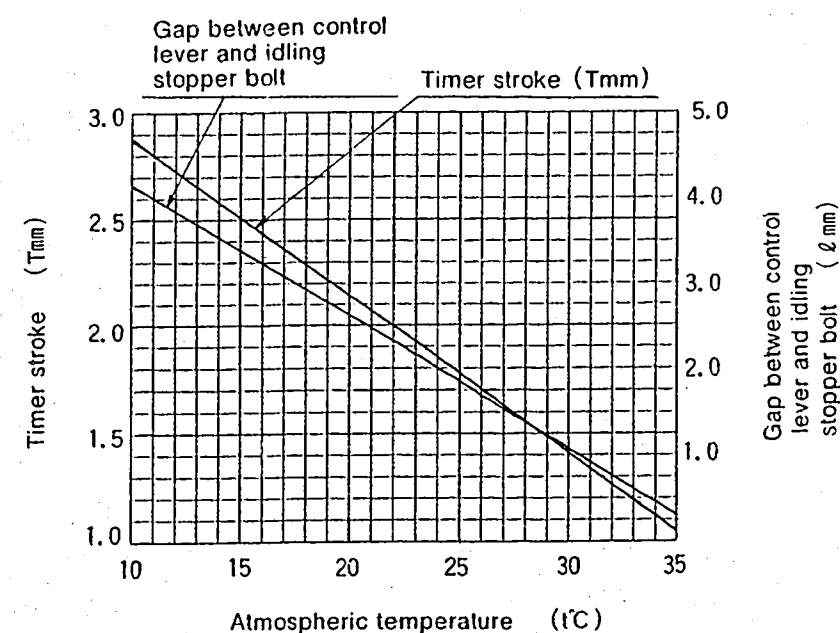


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : 4D55T

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104640-3031 [NP-VE4/10F2100RNP76]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/4

BOSCH No.9 460 610 040

DKKC No. 104740-3280

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD067630

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | Solenoid Timer | ON | OFF |
|-------------------------------|--|----------------------------|------------------------|
| 2-1 Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 95~148 | 2,100 6.5~ 7.1 |
| 2-4 Fuel injection quantities | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) |
| Full speed position | 600 | 32.2~34.2 | 0 |
| | 750 | 35.7~37.7 | 100~120 |
| | 1,250 | 49.3~53.3 | 468~488 |
| | 2,100 | 42.8~47.8 | 615~635 |
| | 2,650 | 18.1~26.1 | 615~635 |
| | 3,050 | Below 10 | 615~635 |
| Switch OFF | 375 | 0 | |
| Idling position | 600 375 | Below 3 6.4~10.4 | |
| Partial load | 600 | 14.5~26.5 | |
| 2-5 Solenoid | Max.cut-in voltage : 3 V Test voltage : 12~14 V | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.8~1.0 mm |
| BCS | 4.4~4.6 mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | — mm |
| β | 41.0~51.0 deg |
| B | — mm |
| γ | 11.5~12.5 deg |
| C | — mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF five or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.

Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

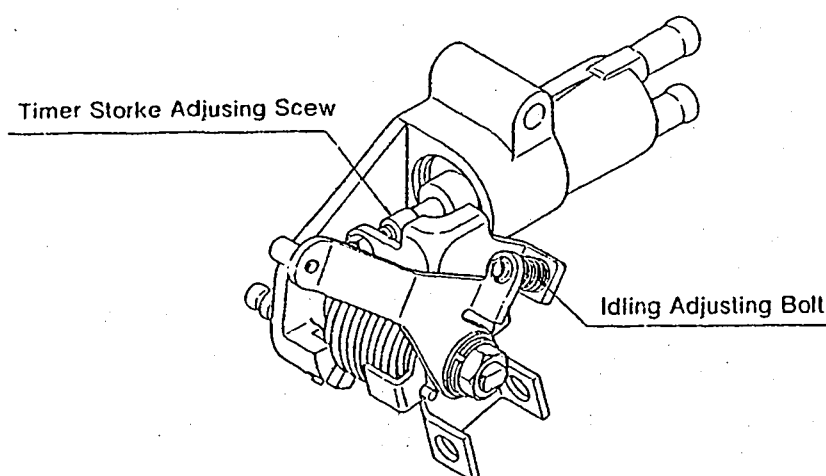


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

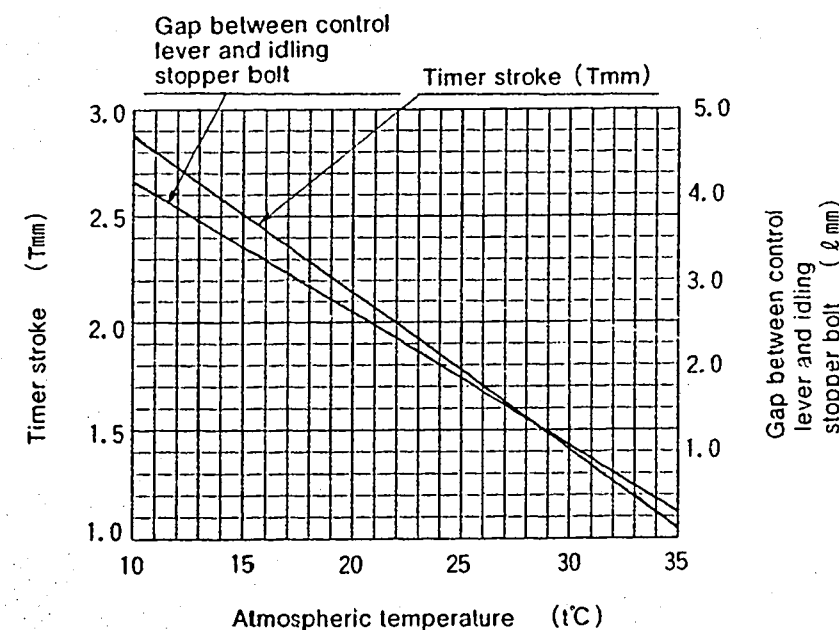


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : 4D55T

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104640-3130 [NP-VE4/10F2100RNP30]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/4
BOSCH No.9 460 610 041
DKKC No. 104740-3320
Date : 20.Nov.1986 ☐
Company : MITSUBISHI
No. MD071530

For Test Condition see
Microfiche No.WP-210(N16)

104740-3320 2/4

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | Solenoid Timer | ON | OFF |
|-------------------------------|--|----------------------------|------------------------|
| 2-1 Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 95~148 | 2,100 9.9~10.7 |
| 2-4 Fuel injection quantities | | | 1,750 4.8~ 6.0 |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) |
| Full speed position | 600 | 32.2~34.2 | 0 |
| | 750 | 35.7~37.7 | 100~120 |
| | 1,250 | 49.3~53.3 | 468~488 |
| | 2,100 | 42.8~47.8 | 615~635 |
| | 2,650 | 18.1~26.1 | 615~635 |
| | 3,050 | Below 10 | 615~635 |
| Switch OFF | 375 | 0 | |
| Idling position | 600 375 | Below 3 6.4~10.4 | |
| Partial load | 600 | 14.5~26.5 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF five or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.



DIESEL KIKI

DIESEL KIKI CO., LTD.
Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
Tel. (03) 400-1551 • Fax: (03) 499-4115

Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

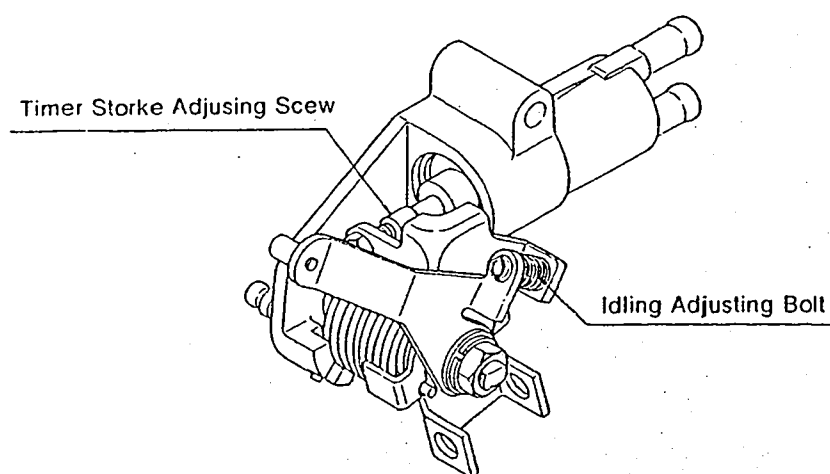


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

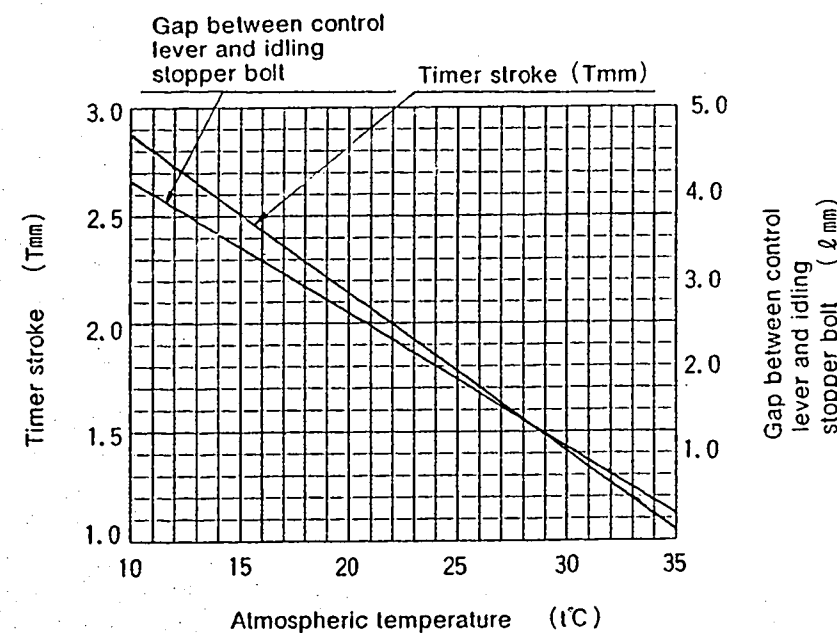


Fig. 2

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : 4D55T

Injection pump No: 104640-3140 [NP-VE4/10F2100RNP76]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 042
DKKC No. 104740-3330
Date : 20.Nov.1986
Company : MITSUBISHI
No. MD071531

For Test Condition see
Microfiche No.WP-210(N16)

104740-3330 2/4

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

| 2. Test Specifications | Solenoid Timer | ON | OFF |
|-------------------------------|--|----------------------------|------------------------|
| 2-1 Timing device | N = rpm mm | 850 3.1~ 3.5 | 1,750 8.1~ 9.3 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 95~148 | 2,100 6.5~ 7.1 |
| 2-4 Fuel injection quantities | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) |
| Full speed position | 600 | 32.2~34.2 | 0 |
| | 750 | 35.7~37.7 | 100~120 |
| | 1,250 | 49.3~53.3 | 468~488 |
| | 2,100 | 42.8~47.8 | 615~635 |
| | 2,650 | 18.1~26.1 | 615~635 |
| | 3,050 | Below 10 | 615~635 |
| Switch OFF | 375 | 0 | |
| Idling position | 600 | Below 3 | |
| | 375 | 6.4~10.4 | |
| Partial load | 600 | 14.5~26.5 | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 41.0~51.0 | deg |
| B | — | mm |
| γ | 11.5~12.5 | deg |
| C | — | mm |

○ Note

■ RUN the pump at 1750rpm, and switch the solenoid timer ON-OFF five or six times to check that it operates properly.

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 100~120 mmHg or — kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

○ Note

■ If there is no designation in the specifications Solenoid Timer ON-OFF position, then the position should be regarded ON.

■ Accelerator Switch Installation Adjustment

1. Insert a block gauge (thickness gauge) of 5.2 mm thickness between the fall speed stopper bolt and control lever.
2. With the control lever in the position described in step 1, adjust the installation position of the accelerator switch, and set it so that it can change from OFF to ON.

■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment
2. Adjust using time. stroke adjusting screw so that the timer stroke is as calculated in Step 1.

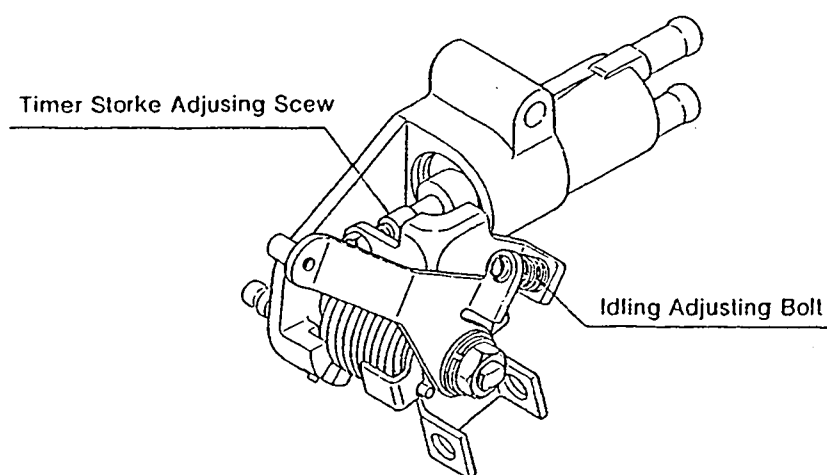


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever roller and control lever are in contact.

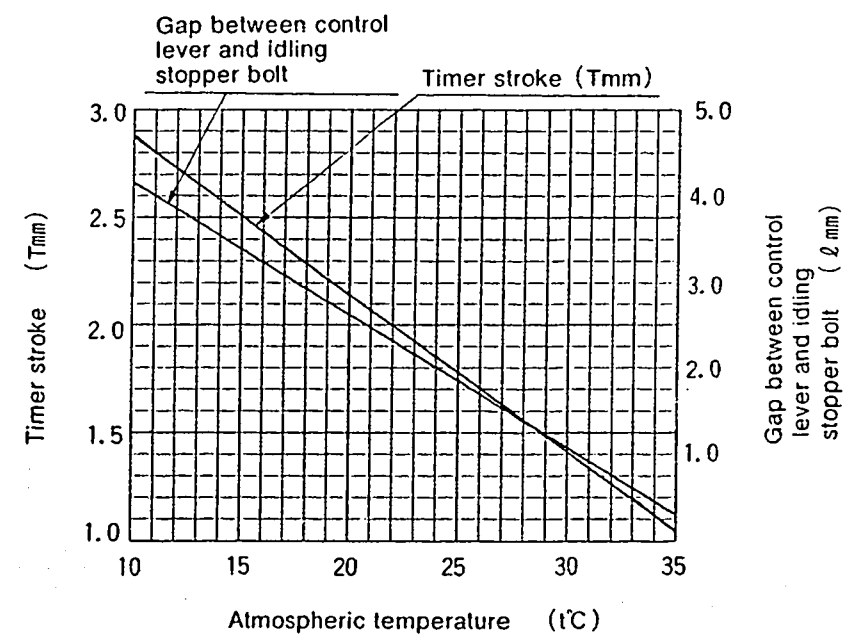


Fig. 2

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : 4D55T

BOSCH No.9 460 610 003

DKKC No. 104740-3360

Date : 20.Nov.1986 0

Company : MITSUBISHI

No. MD 071534

104740-3360

Injection pump No: 104640-3060 [NP-VE4/10F2100RNP149]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~1.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 32.7~33.7 (cc/1,000st) | 0 | 2.5 |
| Full load delivery with charge air pressure | 750 | 36.2~37.2 (cc/1,000st) | 100~120 | |
| 1-4 Idle speed regulation | 375 | 6.4~10.4 (cc/1,000st) | 0 | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 19.1~25.2 (cc/1,000st) | 615~635 | 6.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 850 1.1~1.5 | 1,750 6.1~7.3 | 2,100 7.8~8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~3.5 | 1,250 4.5~5.1 | 2,100 6.5~7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 58~102 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 600 | 32.2~34.2 | 0 | |
| | 750 | 35.7~37.7 | 100~120 | |
| | 1,250 | 49.3~53.3 | 468~488 | |
| | 2,100 | 42.8~47.8 | 615~635 | |
| | 2,650 | 18.1~26.1 | 615~635 | |
| | 3,050 | Below 10 | 615~635 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.4~10.4 | | |
| Partial load | 600 | 14.5~26.5 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.8~1.0 | mm |
| BCS | 4.4~4.6 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | | mm |
| β | 41.0~51.0 | deg |
| B | | mm |
| γ | 11.5~12.5 | deg |
| C | | mm |

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm), set the boost pressure at 100~120 mmHg or \rightarrow kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : 4D55

Injection pump No: 104640-3200 [NP-VE4/10F2100RNP178]

BOSCH No.9 460 610 043

DKKC No. 104740-3410

Date: 20.Nov.1986 (0)

Company: MITSUBISHI

No. MD071539

104740-3410

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~ 1.5 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 750 | 33.2~36.2 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 6.9~ 9.9 (cc/1,000st) | | 2.5 |
| 1-5 Start | 100 | 66.0~86.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 13.1~19.1 (cc/1,000st) | | 4.0 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|---|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 850 0.9~ 1.7 | 1,750 6.1~ 7.3 | 2,100 7.8~ 8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 750 1,250 2,100 2,550 2,900 | 32.7~36.7 36.7~40.7 32.2~36.2 11.1~21.1 Below 5.0 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 375 | Below 3.0 6.4~10.4 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~16 V | | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.3~1.5 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | — | mm |
| β | 38.0~48.0 | deg |
| B | — | mm |
| γ | — | deg |
| C | — | mm |

■ FICD Mounting Position Adjustment

1. Hold the control lever in the idling position.
2. Position the FICD mounting bracket so that the gap between the control lever and the FICD lever is 1+1 mm.

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : 4D55

BOSCH No.9 460 610 095

DKKC No. 104740-3430

Date : 20.Nov.1986 0

Company : MITSUBISHI

No. MD071541

Injection pump No: 104640-3210 [NP-VE4/10F2100RMP169]

Pump rotation : clockwise-viewed from drive side

For Test Condition see
Microfiche No.WP-210(N16)

Pre-stroke : — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 850 | 1.1~ 5.1 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.6~ 5.2 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 750 | 34.0~35.0 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 6.9~10.7 (cc/1,000st) | | 2.5 |
| 1-5 Start | 100 | 68.0~88.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,350 | 6.8~12.8 (cc/1,000st) | | 4.0 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 850 0.9~ 1.7 | 1,750 6.3~ 7.5 | 2,100 7.8~ 8.6 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 3.0~ 3.6 | 1,250 4.6~ 5.2 | 2,100 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48~92 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 750 | 33.5~35.5 | | |
| | 1,250 | 37.7~41.7 | | |
| | 2,100 | 33.0~37.0 | | |
| | 2,350 | 5.0~14.8 | | |
| | 2,500 | Below 5 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.6~10.6 | | |
| | | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.3~1.5 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~65.0 deg |
| A | 10.5~16.0 mm |
| β | 38.0~48.0 deg |
| B | 11.5~15.5 mm |
| γ | — deg |
| C | — mm |



DIESEL KIKI

DIESEL KIKI CO., LTD.

Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN

Tel. (03) 400-1551 · Fax: (03) 499-4115

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : 4D55T

BOSCH No.9 460 610 096

DKKC No. 104740-3541

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD077643

104740-3541

Injection pump No: 104640-3271 [NP-VE4/10F2100RNP258]

Pump rotation : clockwise-viewed from drive side

For Test Condition see
Microfiche No.WP-210(N16)

Pre-stroke : — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 35.7~36.7 (cc/1,000st) | 0 | 3.0 |
| Full load delivery with charge air pressure | 750 | 42.8~43.8 (cc/1,000st) | 170~190 | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | 0 | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 16.6~22.6 (cc/1,000st) | 510~530 | 5.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 750 0.5~ 1.7 | 1,250 2.9~ 3.7 | 1,750 4.9~6.1 | 2,100 6.6~ 7.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|--|----------------------------|------------------------|----------------------------|
| Full speed position | 600 | 35.2~37.2 | 0 | |
| | 750 | 42.3~44.3 | 170~190 | |
| | 1,250 | 53.8~58.8 | 510~530 | |
| | 2,100 | 48.3~53.3 | 510~530 | |
| | 2,650 | 14.6~24.6 | 510~530 | |
| | 3,050 | Below 5 | 510~530 | |
| Switch OFF | 375 | 0 | 0 | |
| Idling position | 600 | Below 3 | 0 | |
| | 375 | 6.0~10.0 | 0 | |
| | | | | |
| | | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.3~1.5 | mm |
| BCS | 4.3~4.5 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | 10.5~16.0 | mm |
| β | 36.0~46.0 | deg |
| B | 10.5~15 | mm |
| γ | — | deg |
| C | — | mm |

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 180 mmHg or 0.25 kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.

INJ. PUMP CALIBRATION DATA

Distributor-type

ENGINE MODEL : 4D55T

TEST OIL:
ISO 4113 or
SAE J967d

BOSCH No. 9 460 610 046

DKKC No. 104740-3570

Date : 20 Nov. 1986

Company : MITSUBISHI

No. MD077642

104740-3570

Injection pump No: 104640-3271 [NP-VE4/10F2100RNP258]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|---|---------------------|--------------------------------|---------------------------|-------------------------------|
| 1-1 Timing device travel | 1,250 | 3.1~ 3.5 (mm) | 0 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 0 | |
| 1-3 Full load delivery without charge air pressure | 600 | 35.7~36.7 (cc/1,000st) | 0 | 3.0 |
| Full load delivery with charge air pressure | 750 | 42.8~43.8 (cc/1,000st) | 170~190 | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | 0 | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 16.6~22.6 (cc/1,000st) | 510~530 | 5.5 |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-----------------------|--------------------|-----------|----------|----------|----------|
| 2-1 Timing device | N = rpm | 750 | 1,250 | 1,750 | 2,100 |
| | mm | 0.5~ 1.7 | 2.9~ 3.7 | 4.9~6.1 | 6.6~ 7.4 |
| 2-2 Supply pump | N = rpm | 600 | 1,250 | 2,100 | |
| | kg/cm ² | 2.9~ 3.5 | 4.5~ 5.1 | 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm | 1,250 | | | |
| | cc/10s | 48.0~92.0 | | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|---------------------------------|---------------------|-------------------------------|---------------------------|-------------------------------|
| Full speed position | 600 | 35.2~37.2 | 0 | |
| | 750 | 42.3~44.3 | 70~190 | |
| | 1,250 | 53.8~58.8 | 510~530 | |
| | 2,100 | 48.3~53.3 | 510~530 | |
| | 2,650 | 14.6~24.6 | 510~530 | |
| | 3,050 | Below 5 | 510~530 | |
| Switch OFF | 375 | 0 | 0 | |
| Idling position | 600 | Below 3 | 0 | |
| | 375 | 6.0~10.0 | 0 | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.3~1.5 | mm |
| BCS | 4.3~4.5 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | 10.5~16.0 | mm |
| β | 36.0~46.0 | deg |
| B | 10.5~15 | mm |
| γ | — | deg |
| C | — | mm |

2-5 Max.cut-in voltage : 8 V
Solenoid Test voltage : 12~14 V

○ Note

■ After adjustment of full load fuel injection quantity (600 rpm) , set the boost pressure at 180 mmHg or 0.25 kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ Check that the injection quantity is within the specified range even when the boost pressure exceeds 700 mmHg.



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INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : 4D56

BOSCH No.9 460 610 187

DKKC No. 104740-3610

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD103210

104740-3610 2/3

Injection pump No: 104640-3330 (NP-VE4/10F2100RNP433)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 45.3~46.3 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 15.1~21.1 (cc/1,000st) | | 4.0 |
| 1-7 Load-timer Adjustment | 1,250 | T-0.6±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 500 0.6~ 1.8 | 750 1.4~ 2.6 | 1,250 3.3~ 4.1 | 2,100 6.6~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |
| 2-4 Fuel injection quantities | | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| Full speed position | 1,250 | 44.8~46.8 | | | |
| | 600 | 42.3~46.3 | | | |
| | 2,100 | 37.2~41.2 | | | |
| | 2,550 | 13.1~23.1 | | | |
| | 2900 | Below 5.0 | | | |
| Switch OFF | 375 | 0 | | | |
| Idling position | 600 375 | Below 3.0 6.0~10.0 | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.1~1.3 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | 10.5~16.0 mm |
| β | 41.0~51.0 deg |
| B | 12.5~16.5 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1250 rpm

Fuel Injection : 35.7±0.5 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

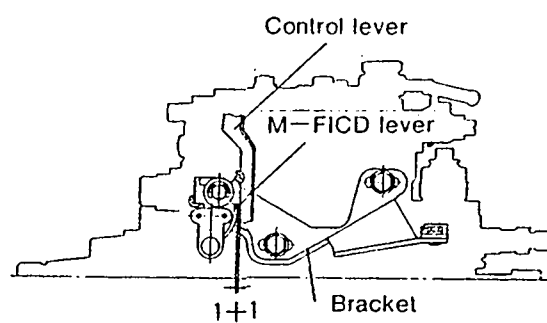
Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 34.7~36.7 | — | (3.1) | 0.2~1.0 |
| 1250 | 26.7~29.7 | — | (2.3) | 0.8~2.0 |

104740-3610 3/3

■ FICD Mounting Position Adjustment

1. Hold the control lever in the idling position.
2. Position the FICD mounting bracket so that the gap between the control lever and the FICD lever is 1 ± 1 mm.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : 4D56

Injection pump No: 104640-3340 [NP-VE4/10F2100RNP432]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 450 610 210

DKKC No. 104740-3620

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD103205

For Test Condition see
Microfiche No.WP-210(N16)

104740-3620

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 45.3~46.3 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 15.1~21.1 (cc/1,000st) | | 4.0 |
| 1-7 Load-timer Adjustment | 1,250 | T-0.6±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 500 0.6~ 1.8 | 750 1.4~ 2.6 | 1,250 3.3~ 4.1 | 2,100 6.6~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |
| 2-4 Fuel injection quantities | | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| Full speed position | 1,250 | 44.8~46.8 | | | |
| | 600 | 42.3~46.3 | | | |
| | 2,100 | 37.2~41.2 | | | |
| | 2,550 | 13.1~23.1 | | | |
| | 2900 | Below 5.0 | | | |
| Switch OFF | 375 | 0 | | | |
| Idling position | 600 375 | Below 3.0 6.0~10.0 | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | | |

3. Dimensions

| | |
|---------------------|----------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.1~1.3 mm |
| BCS | — mm |
| Control lever angle | |
| α | 55.0~63.0° deg |
| A | 10.5~16.0 mm |
| β | 41.0~51.0° deg |
| B | 12.5~16.5 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1250 rpm

Fuel Injection : 35.7±0.5 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 34.7~36.7 | — | (3.1) | 0.2~1.0 |
| 1250 | 26.7~29.7 | — | (2.3) | 0.8~2.0 |

INJ. PUMP CALIBRATION DATA

TEST OIL:
ISO 4113 or
SAE J967d

Distributor-type

MOTOR : 4D56

Injection pump No: 104640-3340 [NP-VE4/10F2100RNP432]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 211

DKKC No. 104740-3630

Date : 20.Nov.1986 ①

Company : MITSUBISHI

No. MD103206

For Test Condition see
Microfiche No.WP-210(N16)

104740-3630

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 45.3~46.3 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 15.1~21.1 (cc/1,000st) | | 4.0 |
| 1-7 Load-timer Adjustment | 1,250 | T=0.6±0.2 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-------------------------------|--------------------------|----------------------------|------------------------|----------------------------|----------|
| 2-1 Timing device | N = rpm | 500 | 750 | 1,250 | 2,100 |
| | mm | 0.6~ 1.8 | 1.4~ 2.6 | 3.3~ 4.1 | 6.6~ 7.8 |
| 2-2 Supply pump | N = rpm | 600 | 1,250 | 2,100 | |
| | kg/cm ² | 2.9~ 3.5 | 4.5~ 5.1 | 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm | 1,250 | | | |
| | cc/10s | 48.0~92.0 | | | |
| 2-4 Fuel injection quantities | | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| Full speed position | 1,250 | 44.8~46.8 | | | |
| | 600 | 42.3~46.3 | | | |
| | 2,100 | 37.2~41.2 | | | |
| | 2,550 | 13.1~23.1 | | | |
| | 2900 | Below 5.0 | | | |
| Switch OFF | 375 | 0 | | | |
| Idling position | 600 | Below 3.0 | | | |
| | 375 | 6.0~10.0 | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V | | | | |
| | Test voltage : 12~14 V | | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.1~1.3 mm |
| BCS | — mm |

Control lever angle

| | |
|---|----------------|
| α | 55.0~63.0° deg |
| A | 10.5~16.0 mm |
| β | 41.0~51.0° deg |
| B | 12.5~16.5 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg
Pump Speed : 1250 rpm
Fuel Injection : 35.7±0.5 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 34.7~36.7 | — | (3.1) | 0.2~1.0 |
| 1250 | 26.7~29.7 | — | (2.3) | 0.8~2.0 |

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : 4D56T

Injection pump No: 104640-3350 [NP-VE4/10F2100RNP430]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 205

DKKC No. 104740-3640

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD103207

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | 540~560 | 4.5 |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 540~560 | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 61.4~62.4 (cc/1,000st) | 540~560 | |
| Full load delivery with charge air pressure | 750 | 60.4~61.4 (cc/1,000st) | 320~340 | 2.0 |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | | |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,650 | 22.2~28.2 (cc/1,000st) | 540~560 | 5.5 |
| 1-7 Load-timer Adjustment | 1,250 | T=0.6±0.2mm | 540~560 | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 500 0.6~ 1.8 | 750 1.4~ 2.6 | 1,250 3.3~ 4.1 | 2,100 6.6~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 60.9~62.9 | 540~560 | |
| | 600 | 45.8~50.8 | 0 | |
| | 750 | 59.9~61.9 | 320~340 | |
| | 2,100 | 52.8~57.8 | 540~560 | |
| | 2,650 | 20.2~30.2 | 540~560 | |
| | 3050 | Below 5.0 | 540~560 | |
| Switch OFF | 375 | 0 | 0 | |
| Idling position | 600 | Below 3.0 | 0 | |
| | 375 | 6.0~10.0 | 0 | |
| | | | | |

2-5 Solenoid
Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.9~1.1 | mm |
| BCS | 3.6~3.8 | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 55.0~63.0 | deg |
| A | 10.5~16.0 | mm |
| β | 40.0~50.0 | deg |
| B | 12.1~16.1 | mm |
| Y | — | deg |
| C | — | mm |

○ Note

■ After adjustment of full load fuel injection quantity (1250 rpm), set the boost pressure at 330 mm Hg or 0.45 kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ To adjust the timer stroke, supply boost pressure of 550 mmHg (0.75 kg/cm²), move the control lever to a position where the full-load injection quantity can be obtained, and then adjust the timer stroke.

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : 540~560 mmHg

Pump Speed : 1250 rpm

Fuel Injection : 50.3 ± 0.5 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|---------------------------------------|--------------------------|----------------------|---|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 49.3~51.3 | 540~560 | (3.1) | 0.2~1.0 |
| 1250 | 38.7~41.7 | 540~560 | (2.3) | 0.8~2.0 |

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : 4D56T

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104640-3350 [NP-VE4/10F2100RNP430]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 206

DKKC No. 104740-3650

Date : 20.Nov.1986 ⑩

Company : MITSUBISHI

No. MD103208

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | 540~560 | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 540~560 | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 61.4~62.4 (cc/1,000st) | 540~560 | 4.5 |
| Full load delivery with charge air pressure | 750 | 60.4~61.4 (cc/1,000st) | 320~340 | |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,650 | 22.2~28.2 (cc/1,000st) | 540~560 | 5.5 |
| 1-7 Load-timer Adjustment | 1,250 | T=0.6±0.2 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 500 0.6~ 1.8 | 750 1.4~ 2.6 | 1,250 3.3~ 4.1 | 2,100 6.6~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 60.9~62.9 | 540~560 | |
| | 600 | 45.8~50.8 | 0 | |
| | 750 | 59.9~61.9 | 320~340 | |
| | 2,100 | 52.8~57.8 | 540~560 | |
| | 2,650 | 20.2~30.2 | 540~560 | |
| | 3,050 | Below 5.0 | 540~560 | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3.0 | 0 | |
| | 375 | 6.0~10.0 | 0 | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 0.9~1.1 mm |
| BCS | 3.6~3.8 mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | 10.5~16.0 mm |
| β | 40.0~50.0 deg |
| B | 12.1~16.1 mm |
| γ | — deg |
| C | — mm |

○ Note

■ After adjustment of full load fuel injection quantity (1250 rpm) , set the boost pressure at 330 mm Hg or 0.45 kg /cm² , and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ To adjust the timer stroke,supply boost pressure of 550 mmHg (0.75 kg/cm²) , move the control lever to a position where the full-load injection quantity can be obtained, and then adjust the timer stroke.

■ **LOAD TIMER ADJUSTMENT**

1) Adjustment

① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : 540~560 mmHg

Pump Speed : 1250 rpm

Fuel Injection : 50.3 ± 0.5 cc/1000st
Quantity

② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|---------------------------------------|--------------------------|----------------------|---|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 49.3~51.3 | 540~560 | (3.1) | 0.2~1.0 |
| 1250 | 38.7~41.7 | 540~560 | (2.3) | 0.8~2.0 |

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : 4D56T

Injection pump No: 104640-3360 [NP-VE4/10F2100RNP431]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 207

DKKC No. 104740-3660

Date : 20.Nov.1986 Q

Company : MITSUBISHI

No. MD103209

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=3.5~ 3.9 (mm) | 540~560 | 4.5 |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | 540~560 | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 61.4~62.4 (cc/1,000st) | 540~560 | |
| Full load delivery with charge air pressure | 750 | 60.4~61.4 (cc/1,000st) | 320~340 | 2.0 |
| 1-4 Idle speed regulation | 375 | 6.5~ 9.5 (cc/1,000st) | 0 | |
| 1-5 Start | 100 | 63.0~83.0 (cc/1,000st) | 0 | |
| 1-6 Full-load speed regulation | 2,650 | 22.2~28.2 (cc/1,000st) | 540~560 | 5.5 |
| 1-7 Load-timer Adjustment | 1,250 | T=0.6±0.2mm | 540~560 | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | | |
|-----|---------------------------------|--|-------------------------------|---------------------------|-------------------------------|-------------------|
| 2-1 | Timing device | N = rpm mm | 500 0.6~ 1.8 | 750 1.4~ 2.6 | 1,250 3.3~ 4.1 | 2,100 6.6~ 7.8 |
| 2-2 | Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,100 6.5~ 7.1 | |
| 2-3 | Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | | |
| 2-4 | Fuel injection quantities | | | | | |
| | Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) | |
| | Full speed position | 1,250 | 60.9~62.9 | 540~560 | | |
| | | 600 | 45.8~50.8 | 0 | | |
| | | 750 | 59.9~61.9 | 320~340 | | |
| | | 2,100 | 52.8~57.8 | 540~560 | | |
| | | 2,650 | 20.2~30.2 | 540~560 | | |
| | | 3050 | Below 5.0 | 540~560 | | |
| | Switch OFF | 375 | 0 | 0 | | |
| | Idling position | 600 | Below 3.0 | 0 | | |
| | | 375 | 6.0~10.0 | 0 | | |
| 2-5 | Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | | |

| | | |
|---------------------|-----------|-----|
| 3. Dimensions | | |
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.9~1.1 | mm |
| BCS | 3.6~3.8 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | 10.5~16.0 | mm |
| β | 40.0~50.0 | deg |
| B | 12.1~16.1 | mm |
| γ | — | deg |
| C | — | mm |

3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 0.9~1.1 | mm |
| BCS | 3.6~3.8 | mm |
| Control lever angle | | |
| α | 55.0~63.0 | deg |
| A | 10.5~16.0 | mm |
| β | 40.0~50.0 | deg |
| B | 12.1~16.1 | mm |
| γ | — | deg |
| C | — | mm |

○ Note

■ After adjustment of full load fuel injection quantity (1250 rpm) , set the boost pressure at 330 mmHg or 0.45 kg/cm², and at pump speed of 750 rpm adjust the fuel injection quantity using the BCS spring set screw.

○ Note

■ To adjust the timer stroke, supply boost pressure of 550 mmHg (0.75 kg/cm²) , move the control lever to a position where the full-load injection quantity can be obtained, and then adjust the timer stroke.

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : 540~560 mmHg

Pump Speed : 1250 rpm

Fuel Injection : 50.3 ± 0.5 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

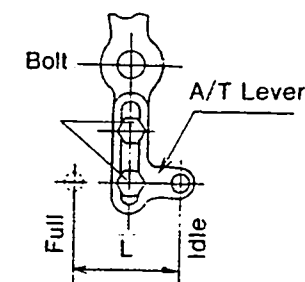
2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|---------------------------------------|--------------------------|----------------------|---|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 49.3~51.3 | 540~560 | (3.1) | 0.2~1.0 |
| 1250 | 38.7~41.7 | 540~560 | (2.3) | 0.8~2.0 |

A/T LINK LEVER ADJUSTMENT

- ① Move the control lever from the idling position to the full speed position and confirm that the A/T lever stroke (L) is 32.9 ± 1 mm.
- ② If dimension L is not as specified, loosen the bolt and adjust by altering the A/T lever position.
- ③ After adjustment, securely tighten the bolt.



INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : SD23

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104640-4311 [NP-VE4/10F2150RNP157]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 163

DKKC No. 104740-4311

Date : 20.Nov.1986 [0]

Company : NISSAN

No. 16700 R8302

For Test Condition see
Microfiche No.WP-210(N16)

104740-4311

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,700 | 4.5~ 4.9 (mm) | | |
| 1-2 Supply pump pressure | 1,700 | 5.6~ 6.2 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,000 | 35.6~36.6 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 300 | 4.3~ 8.3 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 55.0~90.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,300 | 14.7~20.7 (cc/1,000st) | | |
| 1-7 ACS Adjustment | 1,000 | 5.0~ 6.0 (cc/1,000st) | -164±5 | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,000 | 1,700 | 2,150 |
| | mm | 1.4~ 2.6 | 4.4~ 5.0 | 6.1~ 7.1 |
| 2-2 Supply pump | N = rpm | 600 | 1,700 | 2,150 |
| | kg/cm ² | 3.0~ 3.6 | 5.6~ 6.2 | 6.8~ 7.4 |
| 2-3 Overflow delivery | N = rpm | 1,000 | | |
| | cc/10s | 41.0~85.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,000 | 35.1~37.1 | | |
| | 600 | 29.3~33.3 | | |
| | 1,000 | Decrease 4.5~6.5 | -164±5 | |
| | 2,150 | 30.5~34.7 | | |
| | 2,300 | 14.2~21.2 | | |
| | 2,450 | Below 5 | | |
| Switch OFF | 300 | 0 | | |
| Idling position | 300 | 4.3~ 8.3 | | |
| | 350 | Below 3 | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.4~1.6 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 4.0~ 9.2 | mm |
| β | 41.0~51.0 | deg |
| B | 12.1~16.1 | mm |
| γ | — | deg |
| C | — | mm |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

FULL-LOAD FUEL INJECTION QUANTITY AND ACS ADJUSTING PROCEDURE AT ALTITUDE

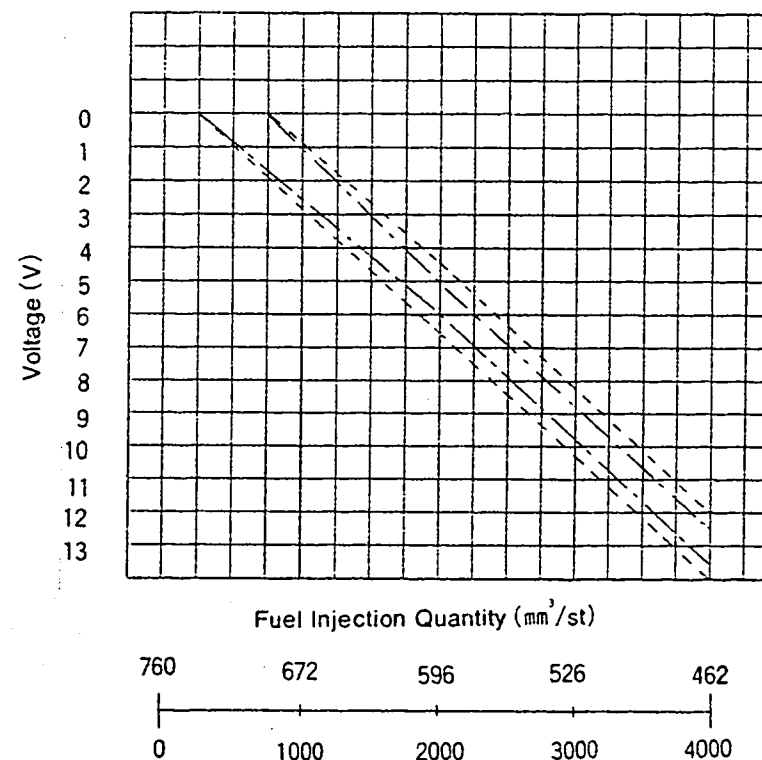
1) FULL-LOAD FUEL INJECTION QUANTITY ADJUSTMENT

- Remove the ACS cover, bellow and adjusting shims.
- Perform all adjustments as described in the adjusting specifications, except for ACS adjustment.

2) ACS ADJUSTMENT

- Attach the ACS cover, bellows and adjusting shims.
- At pump speed of 1000 rpm and referring to the graph below, use the shims to adjust the fuel injection quantity decrease quantity according to altitude.

==== Adjustment limit
----- Inspection limit



DIESEL KIKI CO., LTD.
Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
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INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : S2

Injection pump No: 104648-0050 (NP-VE4/8F2125LNP138)

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 171

DKKC No. 104748-0050

Date : 20.Nov.1986

Company : MAZDA

No. S201 13 800B

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 4.0~ 4.4 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.4~ 5.0 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 38.5~39.5 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 325 | 5.2~ 9.2 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,400 | 13.1~17.1 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|--|-------------------------------|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.9~ 4.5 | 2,125 8.5~ 9.7 | |
| 2-2 Supply pump | N = rpm kg/cm ² | 500 2.1~ 2.7 | 1,250 4.4~ 5.0 | 2,125 6.9~ 7.5 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 52.0~95.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,250 | 38.0~40.0 | | |
| | 500 | 32.6~36.6 | | |
| | 2,125 | 34.1~39.1 | | |
| | 2,400 | 12.1~18.1 | | |
| | 2,500 | Below 10 | | |
| Switch OFF | 325 | 0 | | |
| Idling position | 325 Below 470 | 5.2~ 9.2 0 | | |
| | | | | |
| | | | | |
| 2-5 Solenoid | | | | |
| Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | | |

| | | |
|---------------------|-----------|-----|
| 3. Dimensions | | |
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |
| Control lever angle | | |
| α | 29.0~37.0 | deg |
| A | 8.1~15.2 | mm |
| β | 45.0~55.0 | deg |
| B | 12.8~16.8 | mm |
| γ | — | deg |
| C | — | mm |

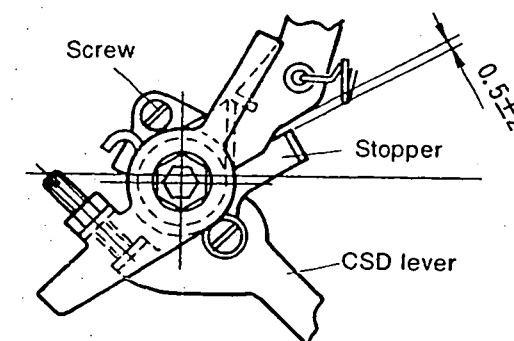
3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |
| Control lever angle | | |
| α | 29.0~37.0 | deg |
| A | 8.1~15.2 | mm |
| β | 45.0~55.0 | deg |
| B | 12.8~16.8 | mm |
| γ | — | deg |
| C | — | mm |

M-CSD Assembly and Adjustment

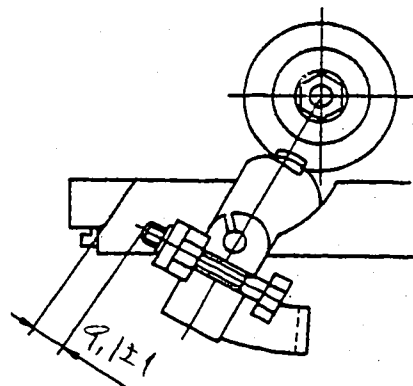
1) Fixing the M-CSD stopper

- Fix the M-CSD assembly temporarily to the pump housing.
- Turn the drive shaft at least two turns in the direction of pump rotation.
- Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
- Move the CSD lever to the advance side.
- Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
- Adjust the stopper position so that the gap between the CSD lever and the stopper is 0.5±2 mm.
- After adjustment, tighten the M-CSD screw to the specified torque (T).



2) FICD screw adjustment

1. Move the CSD lever so that it contacts the stopper.
2. Insert a block gauge (thickness gauge) of 9.1 ± 1 mm thickness between the control lever and idling stopper bolt. (to position the control lever 10° from the idling position).
3. Adjust the FICD screw so that the control lever and the FICD screw are in contact.



INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : R2

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104648-0151 [NP-VE4/8F2125RNP207]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/3
BOSCH No.9 460 610 054

DKKC No. 104748-0151

Date : 20.Nov.1986

Company : MAZDA

No. R201 13 800B

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.7~ 4.1 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.9~ 5.5 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 38.2~39.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 6.0~10.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,400 | 11.1~15.1 (cc/1,000st) | | |
| 1-7 Load-timer Adjustment | 1,250 | 3.1±0.2 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.6~ 4.2 | 1,500 4.6~ 5.8 | 2,125 8.2~ 9.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 500 2.7~ 3.3 | 1,250 4.9~ 5.5 | 2,125 7.3~ 7.9 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 49.7~93.7 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 37.7~39.7 | | |
| | 500 | 31.4~35.4 | | |
| | 1,500 | 37.6~41.6 | | |
| | 2,125 | 31.9~35.9 | | |
| | 2,300 | 20.0~26.0 | | |
| | 2,400 | 10.1~16.1 | | |
| | 2,500 | Below 3.0 | | |

| | | | | |
|-----------------|-----|----------|--|--|
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 6.0~10.0 | | |

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.4~1.6 mm |
| BCS | — mm |

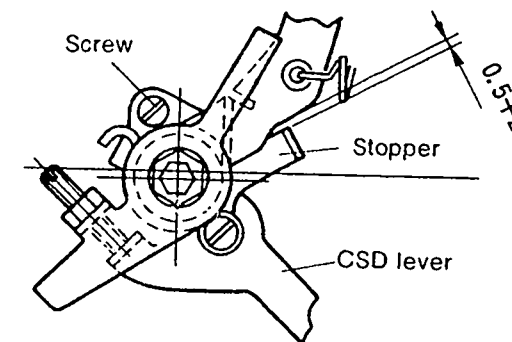
Control lever angle

| | |
|---|---------------|
| α | 26.0~34.0 deg |
| A | 4.0~ 9.5 mm |
| β | 40.0~50.0 deg |
| B | 12.5~15.8 mm |
| γ | — deg |
| C | — mm |

M-CSD Assembly and Adjustment

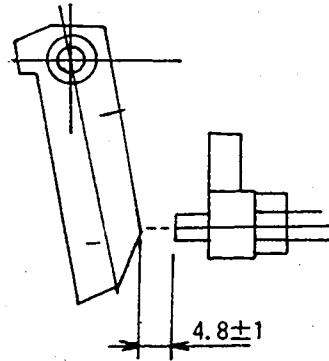
1) Fixing the M-CSD stopper

1. Fix the M-CSD assembly temporarily to the pump housing.
2. Turn the drive shaft at least two turns in the direction of pump rotation.
3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
4. Move the CSD lever to the advance side.
5. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
6. Adjust the stopper position so that the gap between the CSD lever and the stopper is 0.5+2 mm.
7. After adjustment, tighten the M-CSD screw to the specified torque (T).



2) FICD screw adjustment

1. Move the CSD lever so that it contacts the stopper.
2. Insert a block gauge (thickness gauge) of 4.8 ± 0.1 mm thickness between the control lever and idling stopper bolt.
(to position the control lever "from the idling position").
3. Adjust the FICD screw so that the control lever and the FICD screw are in contact.



INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : R2

TEST OIL:
I S O 4113 or
S A E J967d

Injection pump No: 104648-0161 [NP-VE4/8F2125RNP208]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 055

DKKC No. 104748-0161

Date : 20.Nov.1986 ①

Company : MAZDA

No. R20213800B

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.7~4.1 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.9~5.5 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 38.2~39.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 6.0~10.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,400 | 11.1~15.1 (cc/1,000st) | | |
| 1-7 Load-timer Adjustment | 1,250 | 3.1±0.2 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,250 3.6~4.2 | 1,500 4.6~5.8 | 2,125 8.2~9.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 500 2.7~3.3 | 1,250 4.9~5.5 | 2,125 7.3~7.9 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 49.7~93.7 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,250 | 37.7~39.7 | | |
| | 500 | 31.4~35.4 | | |
| | 1,500 | 37.6~41.6 | | |
| | 2,125 | 31.9~35.9 | | |
| | 2,300 | 20.0~26.0 | | |
| | 2,400 | 10.1~16.1 | | |
| | 2,500 | Below 3 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 6.0~10.0 | | |
| | | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.4~1.6 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 26.0~34.0 | deg |
| A | 4.0~9.5 | mm |
| β | 40.0~50.0 | deg |
| B | 12.5~15.8 | mm |
| γ | — | deg |
| C | — | mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1250 rpm

Fuel Injection : 28.2±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1/5)

2) Confirmation of Timer Characteristics

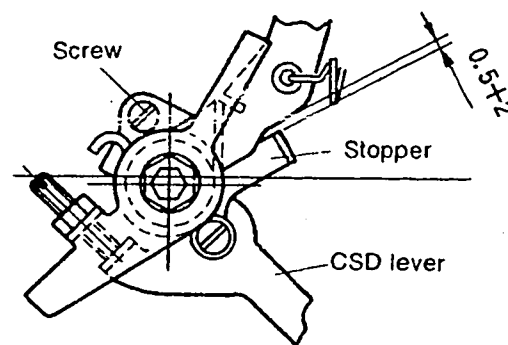
Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 28±1.5 | — | 3.1±0.3 | — |
| 1250 | 18±1.5 | — | (1.9±0.7) | — |

■ M-CSD Assembly and Adjustment

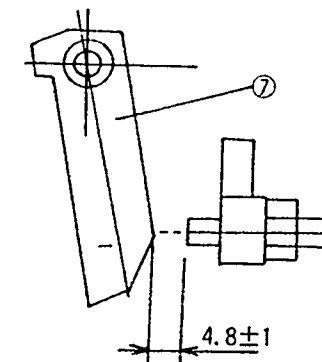
1) Fixing the M-CSD stopper

1. Fix the M-CSD assembly temporarily to the pump housing.
2. Turn the drive shaft at least two turns in the direction of pump rotation.
3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
4. Move the CSD lever to the advance side.
5. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
6. Adjust the stopper position so that the gap between the CSD lever and the stopper is 0.5 ± 2 mm.
7. After adjustment, tighten the M-CSD screw to the specified torque (T).



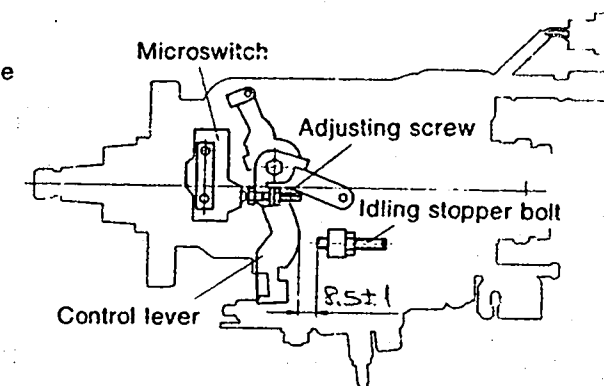
2) FICD screw adjustment

1. Move the CSD lever so that it contacts the stopper.
2. Insert a block gauge (thickness gauge) of 4.8 ± 0.1 mm thickness between the control lever and idling stopper bolt. (to position the control lever 7° from the idling position).
3. Adjust the FICD screw so that the control lever and the FICD screw are in contact.



■ Microswitch Adjustment

1. Fix the control lever in a position where the gap between the control lever and idling stopper bolt is 8.5 ± 1 mm (control lever angle: 12.5°).
2. Adjust using the adjusting screw so that the microswitch comes ON.

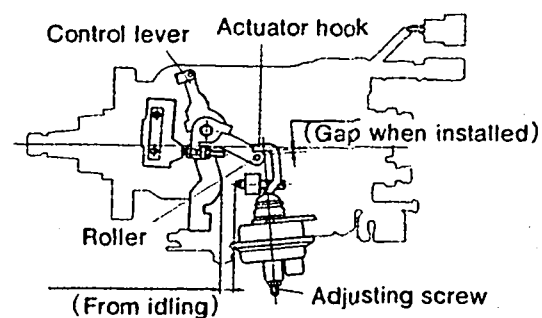


104748-0161 5/5

■ V-FICD Adjustment

1) V-FICD installation position adjustment

1. Hold the control lever in the idling position.
2. Adjust the position of the actuator mounting bracket so that the gap between the control lever roller and the actuator hook is 2^{+2}_{-1} mm.



2) V-FICD stroke adjustment

1. Move the V-FICD through its full stroke.
2. Adjust using the adjusting screw so that the gap between the control lever and the idling stopper bolt is 3.4 ± 1 mm (control lever angle: 5°).

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : P322(R2)

Injection pump No: 104648-0163 [NP-VE4/8F2125RNP208]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 191

DKKC No. 104748-0163

Date : 20.Nov.1986 ☒

Company : MAZDA

No. R20213800D

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | 3.3~ 3.7 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.9~ 5.5 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 38.2~39.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 6.0~10.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,400 | 11.1~15.1 (cc/1,000st) | | |
| 1-7 Load-timer Adjustment | 1,250 | 2.7±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,250 | 1,500 | 2,125 |
| | mm | 3.2~ 3.8 | 4.1~ 5.3 | 7.0~ 8.2 |
| 2-2 Supply pump | N = rpm | 500 | 1,250 | 1,500 |
| | kg/cm ² | 2.7~ 3.3 | 4.9~ 5.5 | 5.6~ 6.2 |
| 2-3 Overflow delivery | N = rpm | 1,250 | | 2,125 |
| | cc/10s | 49.7~93.7 | | 7.3~ 7.9 |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 37.7~39.7 | | |
| | 500 | 30.7~34.7 | | |
| | 2,125 | 32.0~36.0 | | |
| | 2,400 | 10.1~16.1 | | |
| | 2,550 | Below 4.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 6.0~10.0 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.4~1.6 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 28.0~32.0 deg |
| A | 5.4~ 8.2 mm |
| β | 40.0~50.0 deg |
| B | 12.5~15.8 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg
Pump Speed : 1250 rpm
Fuel Injection : 28.2±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

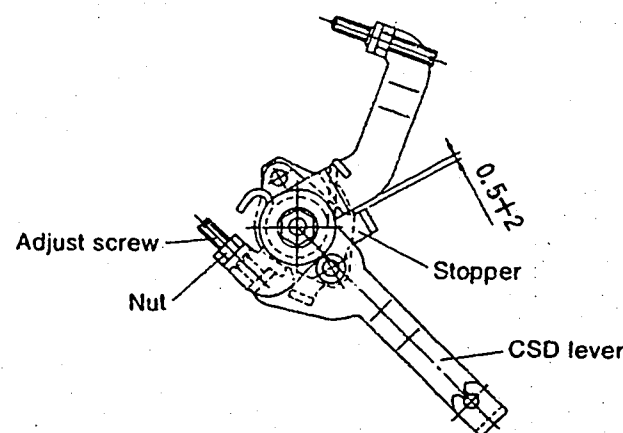
Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 28.2±1.5 | — | 2.7±0.3 | — |
| 1250 | 18.1±1.5 | — | 1.5±0.7 | — |

■ M-CSD Assembly and Adjustment

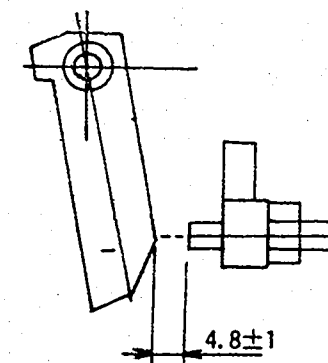
1) Fixing the M-CSD stopper

1. Fix the M-CSD assembly temporarily to the pump housing.
 2. Turn the drive shaft at least two turns in the direction of pump rotation.
 3. Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc).
 4. Move the CSD lever to the advance side.
 5. Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0").
 6. Adjust the stopper position so that the gap between the CSD lever and the stopper is 0.5 ± 2 mm.
 7. After adjustment, tighten the M-CSD screw to the specified torque (T).
- $T = 0.6 \sim 0.9 \text{ kg} \cdot \text{m}$



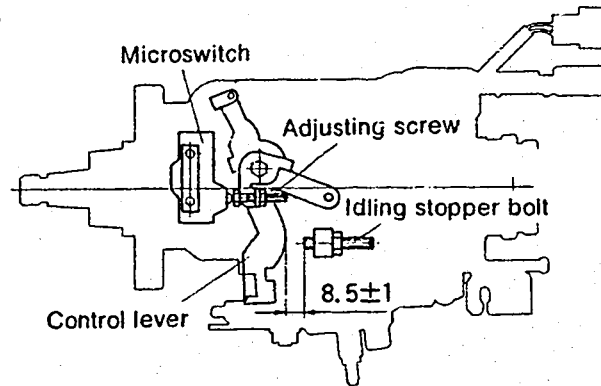
2) FICD screw adjustment

1. Move the CSD lever so that it contacts the stopper.
2. Insert a block gauge (thickness gauge) of 4.8 ± 1 mm thickness between the control lever and idling stopper bolt. (to position the control lever 7° from the idling position).
3. Adjust the FICD screw so that the control lever and the FICD screw are in contact.



■ Microswitch Adjustment

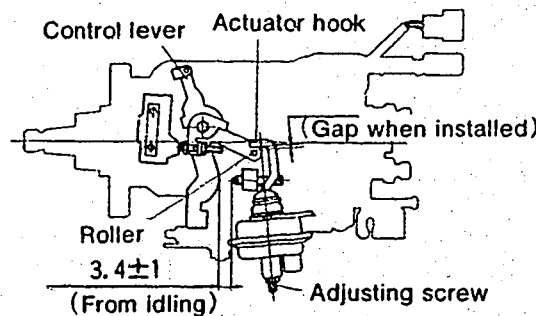
1. Fix the control lever in a position where the gap between the control lever and idling stopper bolt is 8.5 ± 1 mm (control lever angle : 12.5°)
2. Adjust using the adjusting screw so that the microswitch comes ON .



■ V-FICD Adjustment

1) V-FICD installation position adjustment

1. Hold the control lever in the idling position.
2. Adjust the position of the actuator mounting bracket so that the gap between the control lever roller and the actuator hook is 2 ± 2 mm.

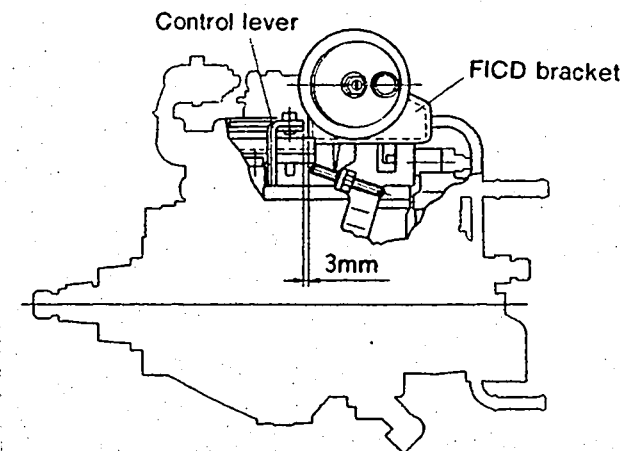


2) V-FICD stroke adjustment

1. Move the V-FICD through its full stroke.
2. Adjust using the adjusting screw so that the gap between the control lever and the idling stopper bolt is 3.4 ± 1 mm (control lever angle : 5°) .

■ FICD Mounting Position Adjustment

1. Adjust the position of the bracket so that the gap between the control lever and the FICD bracket exceeds 3 mm.



INJ. PUMP CALIBRATION DATA **Distributor-type**

MOTOR : RF

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104648-0174 [NP-VE4/8F2325LNP216]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 173

DKKC No. 104748-0174

Date : 20.Nov.1986

Company : MAZDA

No. RF1113800D

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,375 | 4.0~4.4 (mm) | | |
| 1-2 Supply pump pressure | 1,375 | 4.4~5.0 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,375 | 35.4~36.4 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 410 | 7.0~9.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,600 | 10.8~14.8 (cc/1,000st) | | |
| 1-7 Load-timer Adjustment | 1,375 | 3.6±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|------------------|------------------|
| 2-1 Timing device | N = rpm mm | 1,375 3.9~4.5 | 1,800 6.1~7.3 | 2,325 7.2~8.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.2~2.8 | 1,375 4.4~5.0 | 2,325 6.9~7.5 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,370 46.3~90.3 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,375 | 34.9~36.9 | | |
| | 600 | 29.0~33.0 | | |
| | 2,325 | 30.2~34.2 | | |
| | 2,600 | 9.8~15.8 | | |
| | 2,700 | Below 6.0 | | |
| Switch OFF | 410 | 0 | | |
| Idling position | 410 | 6.0~10.0 | | |
| | | | | |
| | | | | |

2-5 Max.cut-in voltage : 8 V
Solenoid Test voltage : 12~14 V

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.4~1.6 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 16.0~24.0 deg |
| A | 5.7~10.9 mm |
| β | 40.0~50.0 deg |
| B | 12.7~16.0 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1375 rpm

Fuel Injection : 28.2±1 cc/1000st
Quantity

② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values

2) Confirmation of Timer Characteristics

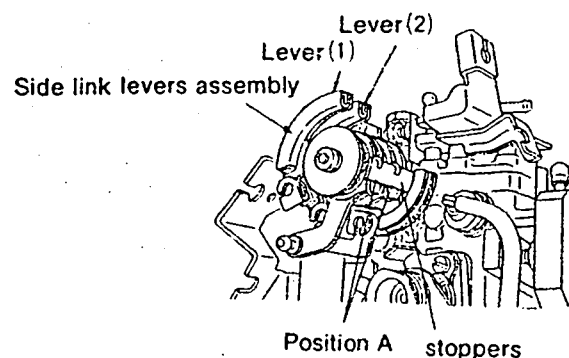
Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1375 | 28.2±1.5 | — | 3.6±0.3 | — |
| 1375 | 16.1±1.5 | — | 2.4±0.7 | — |

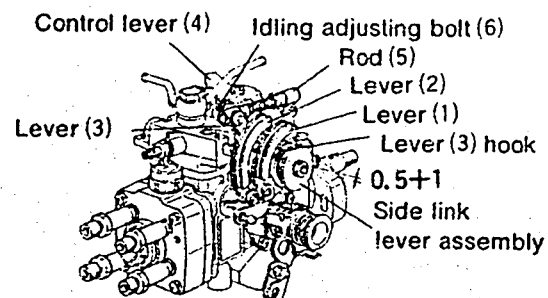
Side Link Lever Adjustment

1) Side link lever adjustment

1. Fix the control lever in the idling position.
2. Check that side link levers (1) and (2) contact the stoppers. (Portion A)

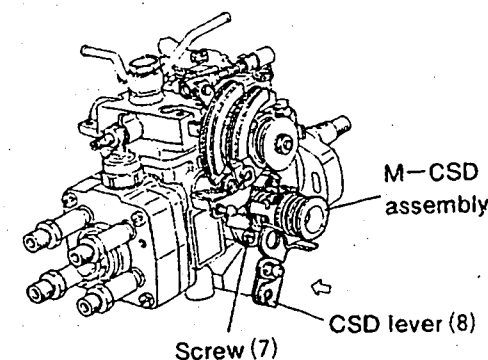


3. If control lever (4) and lever (3) are not connected by rod (5), connect them.
4. After connecting rod (5), adjust the length of rod (5) so that the gap at the hook of lever (3) and levers (1) and (2) is 0.5 ± 1 mm.

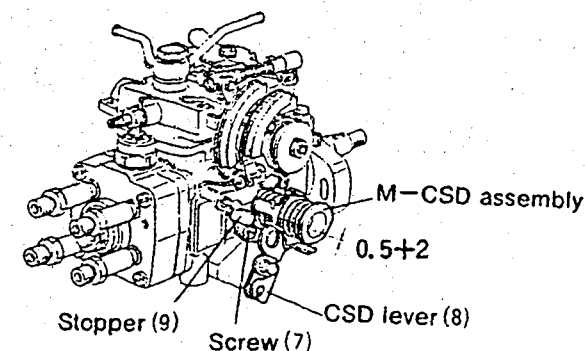


2) M-CSD adjustment

1. Loosen M-CSD lock screw (7).
2. Turn the drive shaft two or three turns and set the measuring device at 0.
3. Move the CSD lever gently in the direction of the arrow (advance direction).
4. Fix the CSD lever in a position where the CSD lever shaft ball pin contacts the roller holder. (Move gently, and hold the CSD lever in the position where the resistance changes.)
5. Check that the measuring device is at the 0 point.

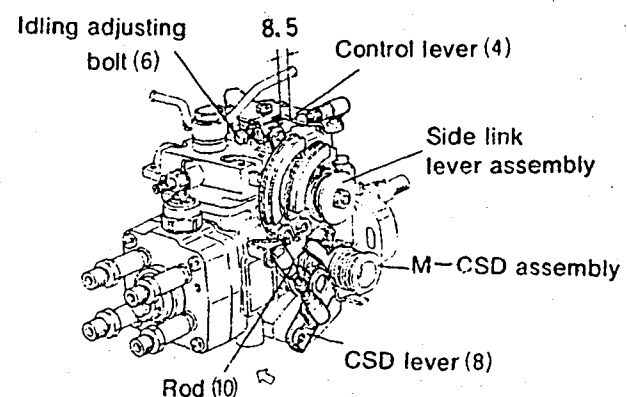


6. Adjust the adjusting screw (12) so that the gap between the CSD lever (8) and the stopper (9) is 0.5 ± 2 mm.
7. Turn the drive shaft two or three turns, check the position of the measuring device 0 point, and then recheck the gap between CSD lever (8) and stopper (9).



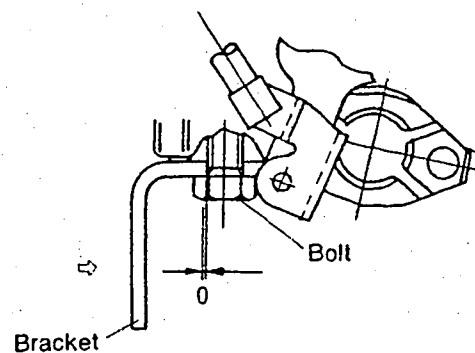
3) Fixing the CSD lever and side link lever connecting rod

1. Connect the side link lever assembly and CSD lever using rod (10).
2. Move the CSD lever through its full stroke (in the direction the arrow).
3. Adjust the length of rod (10) so that the gap between control lever (4) and idling adjusting bolt (6) is 8.5 ± 1 mm, and then fix in this position.



4) Fixing the engine installation bracket

1. Fix the bracket temporarily to the pump.
2. Move the bracket in the direction of the arrow until the clearance is 0.
3. Fix the bracket in position using the bolts.



INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : RF

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104648-0244 [NP-VE4/8F2325LNP351]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 193

DKKC No. 104748-0244

Date : 20.Nov.1986

Company : MAZDA

No. RF39 13 800D

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,375 | 4.0~ 4.4 (mm) | | |
| 1-2 Supply pump pressure | 1,375 | 4.4~ 5.0 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,375 | 35.4~36.4 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 410 | 7.0~ 9.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 42.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,600 | 10.8~14.8 (cc/1,000st) | | |
| 1-7 Load-timer adjustment | 1,375 | 3.6± 0.2 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,375 3.9~ 4.5 | 1,800 6.1~ 7.3 | 2,325 7.2~ 8.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.2~ 2.8 | 1,375 4.4~ 5.0 | 2,325 6.9~ 7.5 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,375 46.3~90.3 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,375 | 34.9~36.9 | | |
| | 600 | 29.0~33.0 | | |
| | 2,325 | 30.2~34.2 | | |
| | 2,600 | 9.8~15.8 | | |
| | 2,700 | Below 6.0 | | |
| Switch OFF | 410 | 0 | | |
| Idling position | 410 | 6.0~10.0 | | |
| | | | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

| | | |
|---------------------|-----------|-----|
| 3. Dimensions | | |
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.4~1.6 | mm |
| BCS | — | mm |
| Control lever angle | | |
| α | 16.0~24.0 | deg |
| A | 5.7~ 10.9 | mm |
| β | 40.0~50.0 | deg |
| B | 12.7~16.0 | mm |
| γ | — | deg |
| C | — | mm |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.4~1.6 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 16.0~24.0 deg |
| A | 5.7~ 10.9 mm |
| β | 40.0~50.0 deg |
| B | 12.7~16.0 mm |
| γ | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1,375 rpm

Fuel Injection : 28.2±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1/5)

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

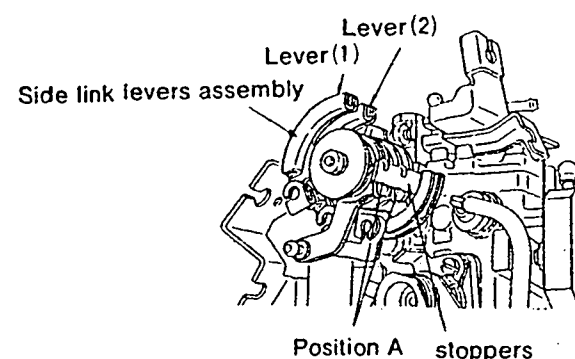
| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1,375 | 28.2±1.5 | — | 3.6±0.3 | — |
| 1,375 | 16.1±1.5 | — | 2.4±0.7 | — |

104749-0244 3/5

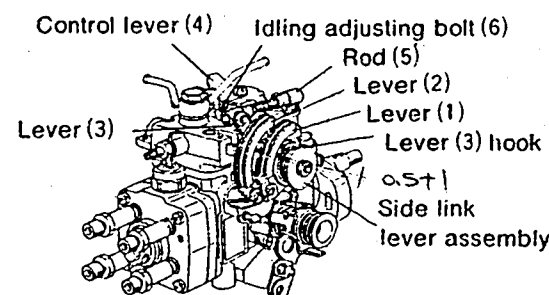
Side Link Lever Adjustment

1) Side link lever adjustment

1. Fix the control lever in the idling position.
2. Check that side link levers (1) and (2) contact the stoppers. (Portion A)

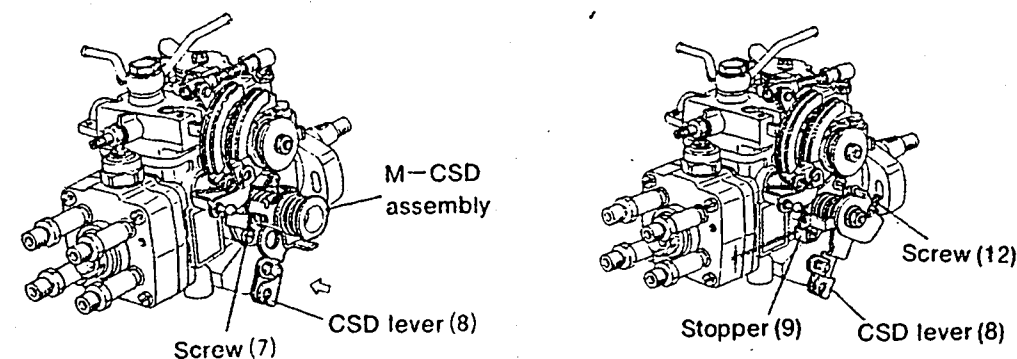


3. If control lever (4) and lever (3) are not connected by rod (5), connect them.
4. After connecting rod (5), adjust the length of rod (5) so that the gap at the hook of lever (3) and levers (1) and (2) is 0.5 ± 1 mm.



2) M-CSD adjustment

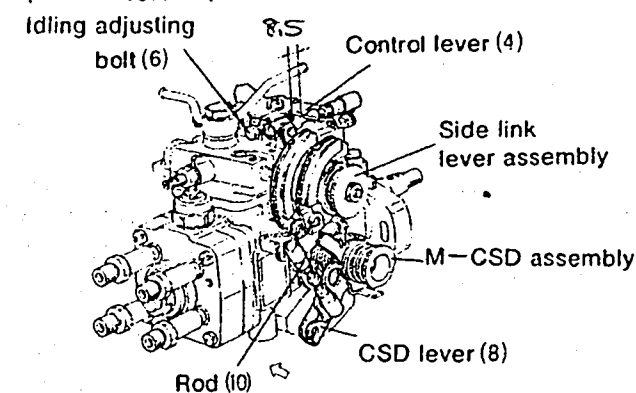
1. Turn the drive shaft two or three turns and set the measuring device at 0.
2. Move the CSD lever gently in the direction of the arrow (advance direction).
3. Fix the CSD lever in a position where the CSD lever shaft ball pin contacts the roller holder. (Move gently, and hold the CSD lever in the position where the resistance changes.)
4. Check that the measuring device is at the 0 point.
5. Adjust the adjusting screw (12) so that the gap between the CSD lever (8) and the stopper (9) is 0.5 ± 2 mm.
6. Turn the drive shaft two or three turns, check the position of the measuring device 0 point, and then recheck the gap between CSD lever (8) and stopper (9).



3) Fixing the CSD lever and side link lever connecting rod

1. Connect the side link lever assembly and CSD lever using rod (10).
2. Move the CSD lever through its full stroke (in the direction the arrow).
3. Adjust the length of rod (10) so that the gap between control lever (4) and idling adjusting bolt (6) is 8.5 mm, and then fix in this position.

(Target engine speed: 1900 rpm)



104749-0244 5/5

INJ. PUMP CALIBRATION DATA Distributor-type

BOSCH No.9 460 610 178

DKKC No. 104748-1190

Date: 20.Nov.1986

Company: ISUZU

No. 894241 5030

For Test Condition see
Microfiche No.WP-210(N16)

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : 4FB1

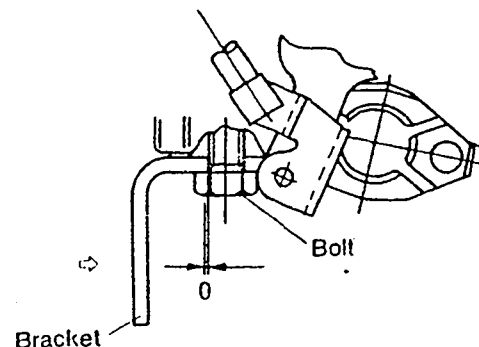
Injection pump No: 104648-1120 [NP-VE4/8F2500RNP61]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

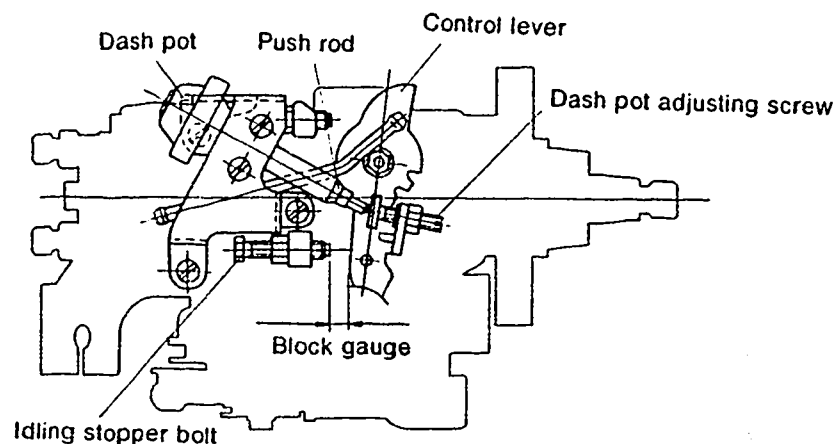
4) Fixing the engine installation bracket

1. Fix the bracket temporarily to the pump.
2. Move the bracket in the direction of the arrow until the clearance is 0.
3. Fix the bracket in position using the bolts.



DASH POT ADJUSTMENT.

- ① Insert a block gauge (thickness gauge) of thickness 8.5 in the gap between the control lever and the idling stopper bolt. (control lever angle : 13°)
- ② With the control lever positioned as described in ① above, adjust the Dashpot adjusting screw so that the Dashpot adjusting screw and the push rod are in contact. Fix using the nut.



| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,400 | 2.6~ 3.0 (mm) | | |
| 1-2 Supply pump pressure | 1,000 | 4.7~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 30.7~31.7 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 365 | 5.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 40.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,750 | 12.0~18.0 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|---------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,400 2.5~ 3.1 | 2,000 4.2~ 5.4 | 2,750 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 3.5~ 4.1 | 1,400 4.7~ 5.1 | 2,500 7.4~ 8.0 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,400 58.0~102.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 30.2~32.2 | | |
| | 600 | 25.4~29.4 | | |
| | 2,500 | 28.2~32.2 | | |
| | 2,750 | 12.0~18.0 | | |
| | 3,000 | Below 4.0 | | |
| Switch OFF | 365 | 0 | | |
| Idling position | 365 | 5.5~9.5 | | |
| | 500 | Below 3.0 | | |
| | | | | |
| | | | | |

3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | — | mm |
| β | 33.0~43.0 | deg |
| B | — | mm |
| Y | — | deg |
| C | — | mm |

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|



DIESEL KIKI CO., LTD.
Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
Tel. (03) 400-1551 · Fax: (03) 499-4115

INJ. PUMP CALIBRATION DATA

Distributor-type

MOTOR : CD17

TEST OIL:
ISO 4113 or
SAE J967d

Injection pump No: 104648-2061 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

1/3
BOSCH No.9 460 610 013

DKKC No. 104748-2071

Date : 20.Nov.1986 ②

Company : NISSAN

No. 16700 16A60

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~ 2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~ 3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 5.3~ 8.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,200 | 1,800 | 2,500 |
| | mm | 1.7~2.5 | 4.0~ 5.2 | 6.8~ 8.0 |
| 2-2 Supply pump | N = rpm | 1,200 | 1,800 | 2,500 |
| | kg/cm ² | 3.0~ 3.8 | 4.4~ 5.2 | 6.1~ 6.9 |
| 2-3 Overflow delivery | N = rpm | 1,200 | | |
| | cc/10s | 36.0~80.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6.0 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 4.8~ 8.8 | | |
| | 600 | Below 3.0 | | |
| Partial load | 700 | 10.0~20.0 | | |

2-5 Max.cut-in voltage : 8 V
Solenoid Test voltage : 12~14 V

3. Dimensions

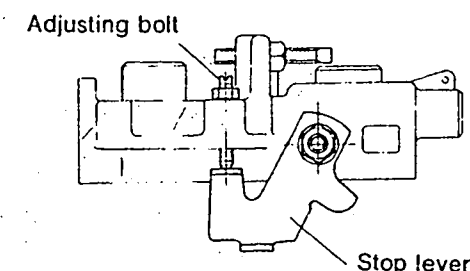
| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 2.5~ 8.0 | mm |
| β | 39.0~49.0 | deg |
| B | 11.0~10.0 | mm |
| γ | 13.5~14.5 | deg |
| C | 8.6~ 9.2 | mm |

Starting Injection Quantity Adjustment

Adjust the starting injection quantity (item 1/5) using the adjusting bolt (as shown in the figure at right).



W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

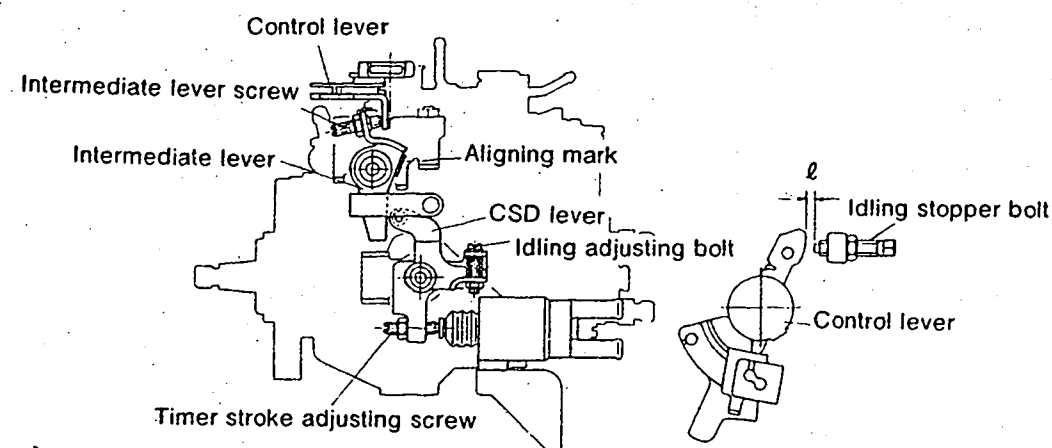


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0±0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Notes :

1. The temperature of the wax must be below 30°C when adjusting.
2. When inserting a block gauge (thickness gauge) between the control lever (beacket) and the idling stopper bolt, use the idling adjusting bolt to separate the CSD lever and intermediate lever so that no excessive force is exerted on them.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0284t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $\ell = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $\ell = -0.05t + 2.9$

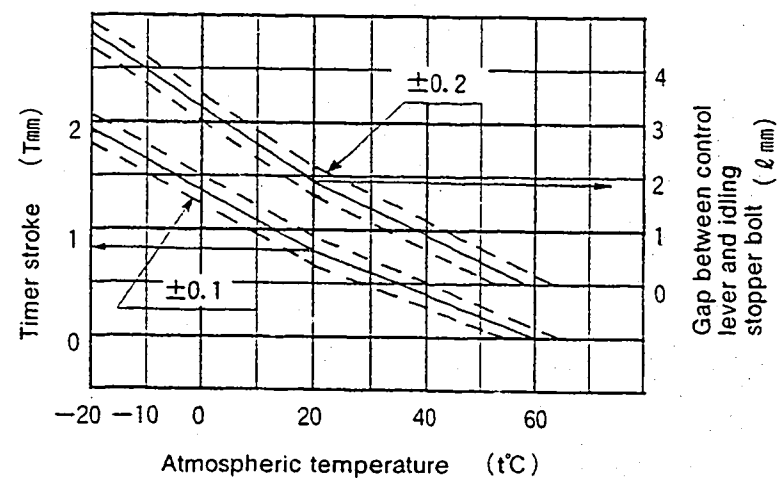


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

BOSCH No.9 460 610 014

DKKC No. 104748-2091

Date: 20.Nov.1986 [2]

Company: NISSAN

No. 16700 16A70

For Test Condition see
Microfiche No.WP-210(N16)TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL: CD17

Injection pump No: 104648-2061 [NP-VE4/8F2500LNP164]

Pump rotation: Counter clockwise-viewed from drive side

Pre-stroke: — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~ 2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~ 3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 5.3~ 8.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------|---------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,200 1.7~2.5 | 1,800 4.0~ 5.2 | 2,500 6.8~ 8.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,200 3.0~ 3.8 | 1,800 4.4~ 5.2 | 2,500 6.1~ 6.9 |
| 2-3 Überlaufmenge | N = min ⁻¹ cc/10s | 1,200 36.0~80.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|--|----------------------------|------------------------|----------------------------|
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6.0 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 4.8~ 8.8 | | |
| | 600 | Below 3.0 | | |
| Partial load | 700 | 10.0~20.0 | | |
| 2-5 Solenoid | Max.cut-in voltage: 8 V Test voltage: 12~14 V | | | |

3. Dimensions

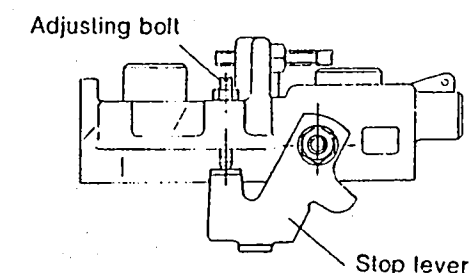
| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 2.5~ 8.0 | mm |
| β | 39.0~49.0 | deg |
| B | 11.0~10.0 | mm |
| γ | 13.5~14.5 | deg |
| C | 8.6~ 9.2 | mm |

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

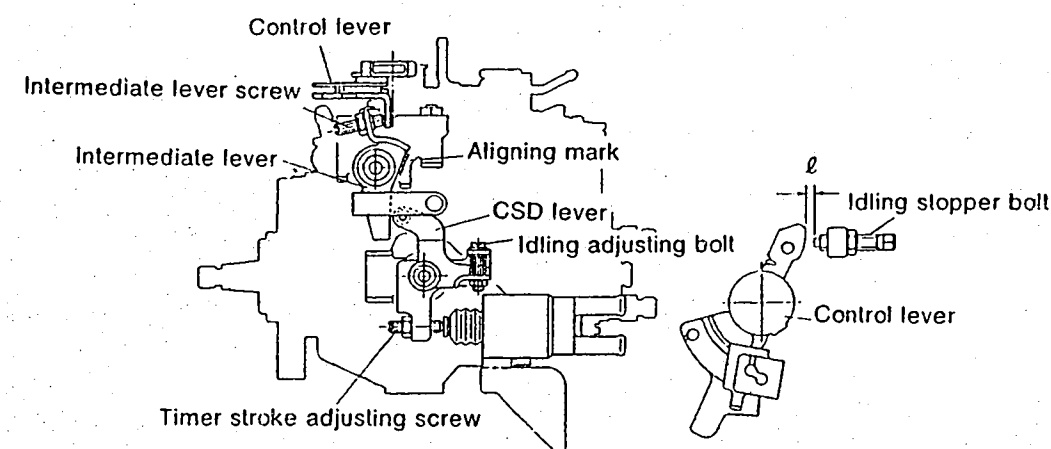


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Notes :

1. The temperature of the wax must be below 30°C when adjusting.
2. When inserting a block gauge (thickness gauge) between the control lever (beacket) and the idling stopper bolt, use the idling adjusting bolt to separate the CSD lever and intermediate lever so that no excessive force is exerted on them.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0248t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $\ell = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $\ell = -0.05t + 2.9$

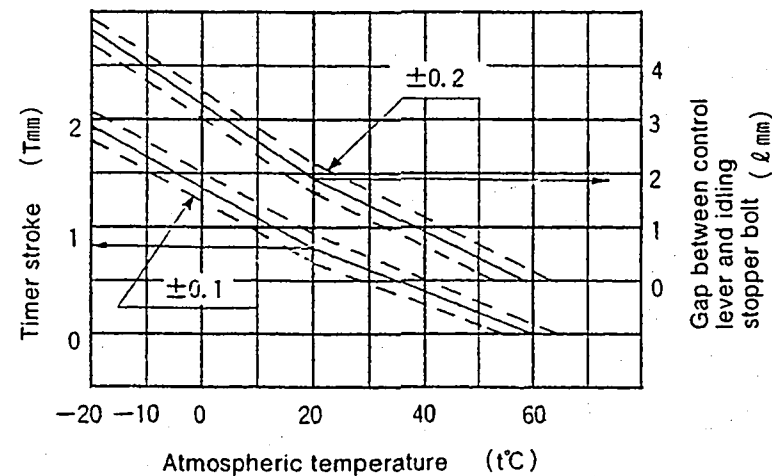


Fig. 2

INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : CD17

Injection pump No: 104648-2090 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 059
DKKC No. 104748-2150
Date : 20.Nov.1986
Company : NISSAN
No. 16700 16A66

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|---------|---------|
| 2-1 Timing device | N = rpm | 1,200 | 1,800 | 2,500 |
| | mm | 1.7~2.5 | 4.0~5.2 | 6.8~8.0 |
| 2-2 Supply pump | N = rpm | 1,200 | 1,800 | 2,500 |
| | kg/cm ² | 3.0~3.8 | 4.4~5.2 | 6.1~6.9 |
| 2-3 Overflow delivery | N = rpm | 1,200 | | |
| | cc/10s | 36.0~80.0 | | |

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |

| | | | | |
|-----------------|-----|-----------|--|--|
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |

| | |
|--------------|--------------------------|
| 2-5 Solenoid | Max.cut-in voltage : 8 V |
| | Test voltage : 12~14 V |

3. Dimensions

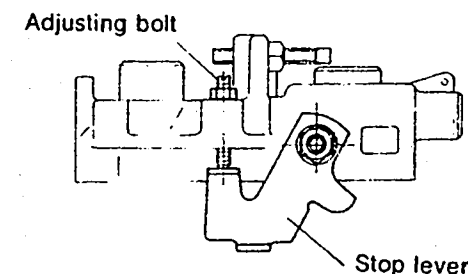
| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21~29 | deg |
| A | 2.5~8.0 | mm |
| β | 37.0~47.0 | deg |
| B | 10.7~14.8 | mm |
| γ | 10.5~11.5 | deg |
| C | 6.7~7.3 | mm |

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



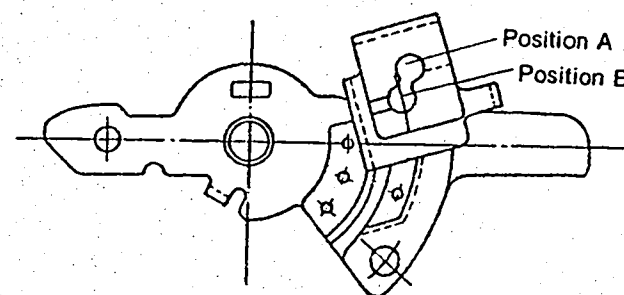
Plug positions

The plug (146616-0900) installation (shown below), depends on the value of control lever angle β.

Position A : When $37^\circ(10.7\text{mm}) \leq \beta(B) < 41^\circ(12.4\text{mm})$

Position B : When $41^\circ(12.4\text{mm}) \leq \beta(B) \leq 47^\circ(14.8\text{mm})$

Plug (146616-0900)



■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

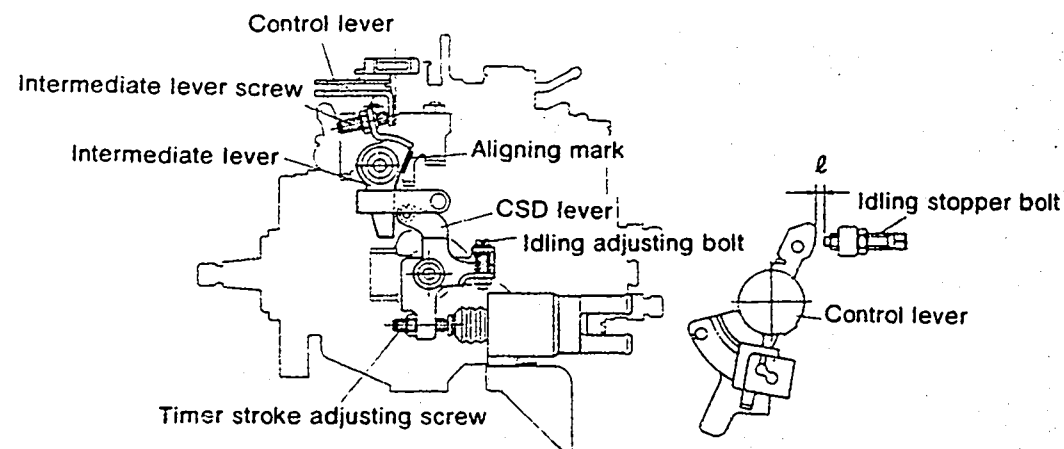


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0284t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $l = -0.05t + 2.9$

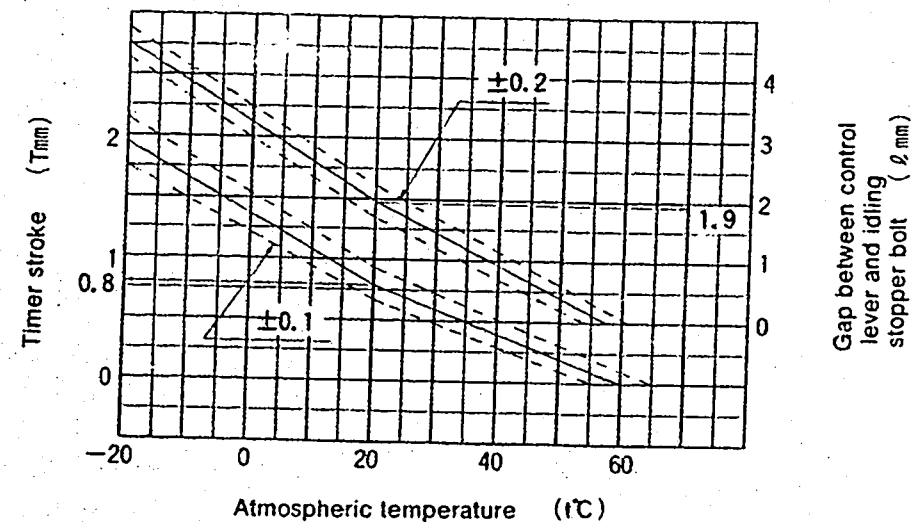


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : CD17

Injection pump No: 104648-2090 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 061
DKKC No. 104748-2170
Date : 20.Nov.1986 [2]
Company : NISSAN
No. 15700 16A76

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--------------------------|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm | 1,200 | 1,800 | 2,500 |
| | mm | 1.7~2.5 | 4.0~5.2 | 6.8~8.0 |
| 2-2 Supply pump | N = rpm | 1,200 | 1,800 | 2,500 |
| | kg/cm ² | 3.0~3.8 | 4.4~5.2 | 6.1~6.9 |
| 2-3 Overflow delivery | N = rpm | 1,200 | | |
| | cc/10s | 36.0~80.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V | | | |
| | Test voltage : 12~14 V | | | |

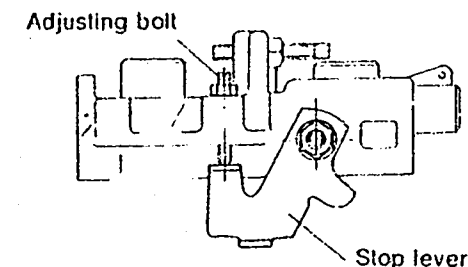
3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |
| Control lever angle | | |
| α | 21~29 | deg |
| A | 2.5~8.0 | mm |
| β | 37.0~47.0 | deg |
| B | 10.7~14.8 | mm |
| γ | 10.5~11.5 | deg |
| C | 6.7~7.3 | mm |

104748-2170 2/4

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



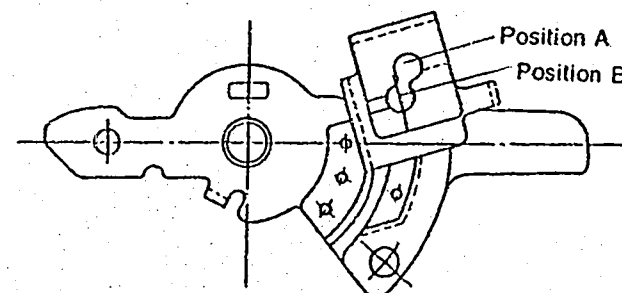
Plug positions

The plug (146616-0900) installation (shown below), depends on the value of control lever angle β.

Position A : When $37^{\circ}(10.7\text{mm}) \leq \beta (B) < 41^{\circ}(12.4\text{mm})$

Position B : When $41^{\circ}(12.4\text{mm}) \leq \beta (B) \leq 47^{\circ}(14.8\text{mm})$

Plug (146616-0900)



■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

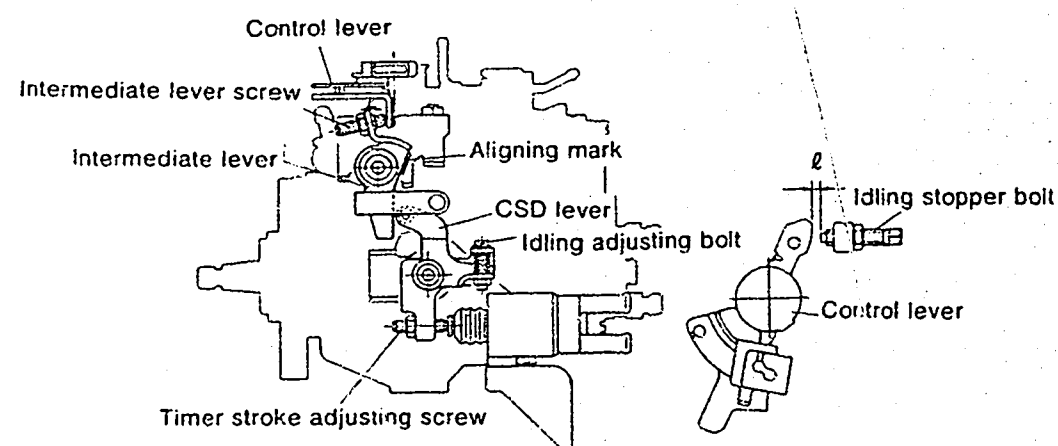


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0284t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $l = -0.05t + 2.9$

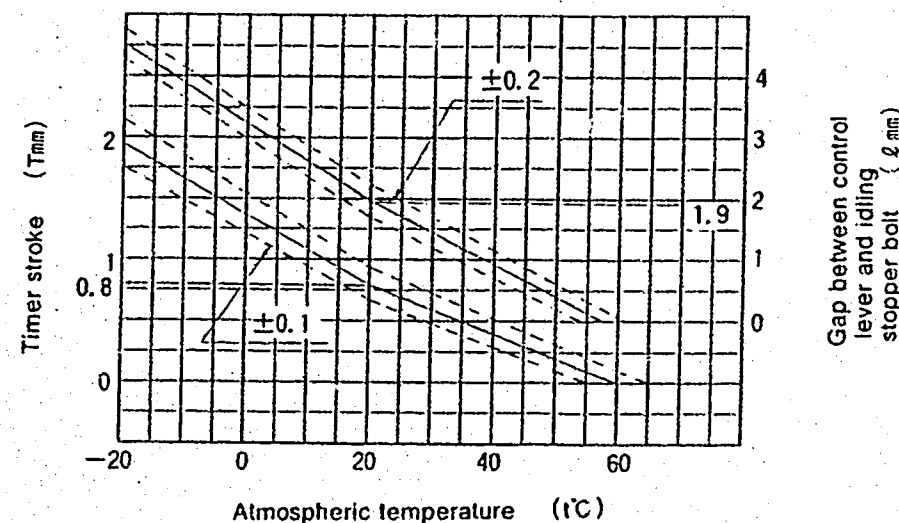


Fig. 2

INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : CD17

Injection pump No: 104648-2160 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : - mm

BOSCH No.9 460 610 063

DKKC No. 104748-2290

Date : 20.Nov.1986

Company : NISSAN

No. 16700 16A67

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

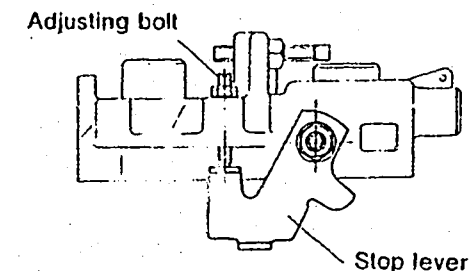
| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,200 1.7~2.5 | 1,800 4.0~5.2 | 2,500 6.8~8.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,200 3.0~3.8 | 1,800 4.4~5.2 | 2,500 6.1~6.9 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,200 36.0~80.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | | |
|---------------------|-----------|-----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | - | mm |
| Control lever angle | | |
| α | 21~29 | deg |
| A | 2.5~8.0 | mm |
| β | 37.0~47.0 | deg |
| B | 10.7~14.8 | mm |
| γ | 10.5~11.5 | deg |
| C | 6.7~7.3 | mm |

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



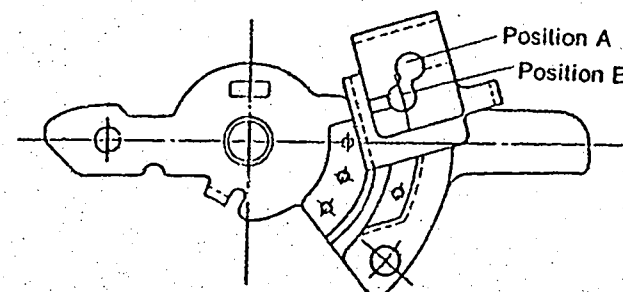
Plug positions

The plug (146616-0900) installation (shown below), depends on the value of control lever angle β.

Position A : When $37^\circ(10.7\text{mm}) \leq \beta(B) < 41^\circ(12.4\text{mm})$

Position B : When $41^\circ(12.4\text{mm}) \leq \beta(B) \leq 47^\circ(14.8\text{mm})$

Plug (146616-0900)



■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

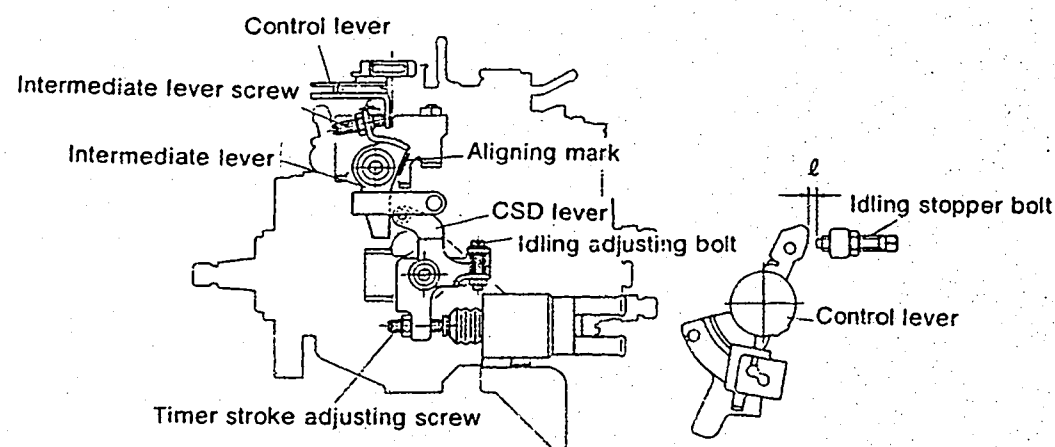


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0284t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $l = -0.05t + 2.9$

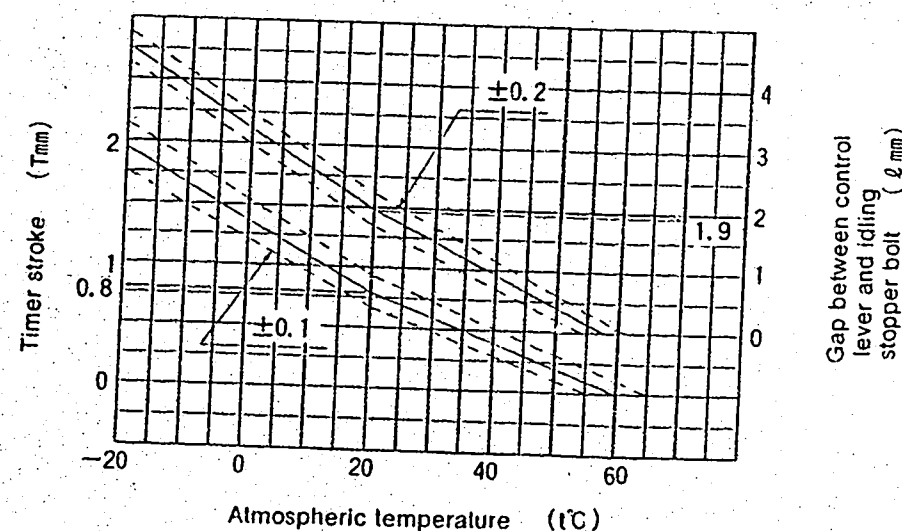


Fig. 2

INJ. PUMP CALIBRATION DATA

TEST OIL:
ISO 4113 or
SAE J967d

Distributor-type

ENGINE MODEL : CD17

Injection pump No: 104648-2160 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 065

DKKC N. 104748-2310

Date : 20.Nov.1986

Company : NISSAN

No. 16700 16A77

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | 3.0 |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-------------------------------|--|----------------------------|------------------------|----------------------------|
| 2-1 Timing device | N = rpm mm | 1,200 1.7~2.5 | 1,800 4.0~5.2 | 2,500 6.8~8.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,200 3.0~3.8 | 1,800 4.4~5.2 | 2,500 6.1~6.9 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,200 36.0~80.0 | | |
| 2-4 Fuel injection quantities | | | | |
| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.5~1.7 mm |
| BCS | — mm |

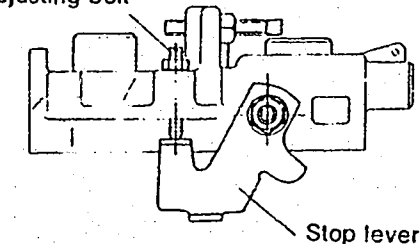
Control lever angle

| | |
|---|---------------|
| α | 21~29 deg |
| A | 2.5~8.0 mm |
| β | 37.0~47.0 deg |
| B | 10.7~14.8 mm |
| γ | 10.5~11.5 deg |
| C | 6.7~7.3 mm |

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).

Adjusting bolt



Stop lever

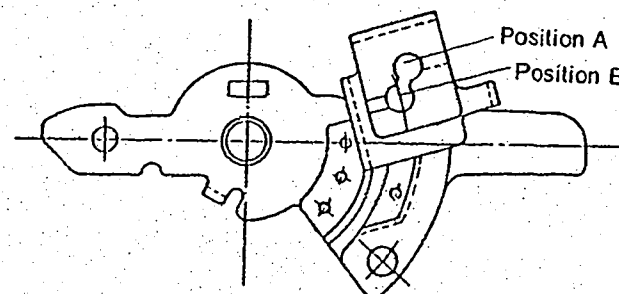
Plug positions

The plug (146616-0900) installation (shown below), depends on the value of control lever angle β .

Position A : When $37^\circ(10.7\text{mm}) \leq \beta(B) < 41^\circ(12.4\text{mm})$

Position B : When $41^\circ(12.4\text{mm}) \leq \beta(B) \leq 47^\circ(14.8\text{mm})$

Plug (146616-0900)



W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

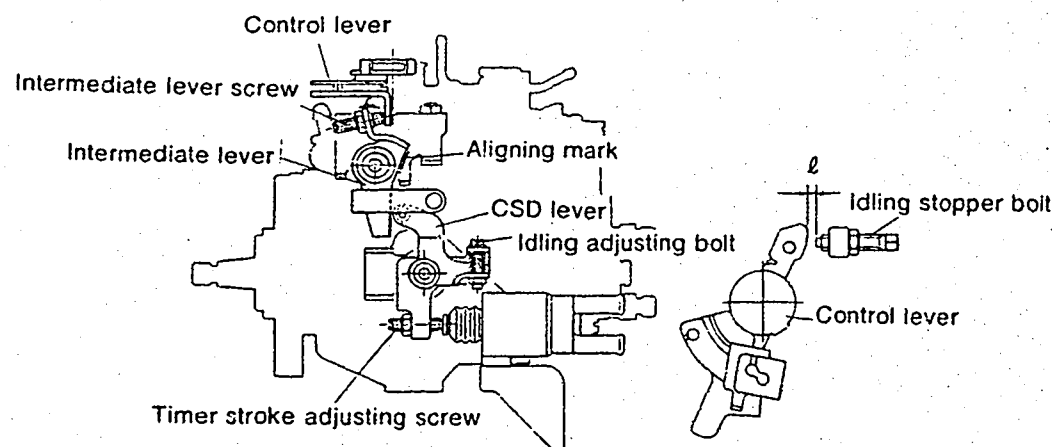


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.0 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0284t + 1.367$

When $20 \leq t \leq 60$: $T = -0.02t + 1.2$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $\ell = -0.0667t + 3.23$

When $20 \leq t \leq 60$: $\ell = -0.05t + 2.9$

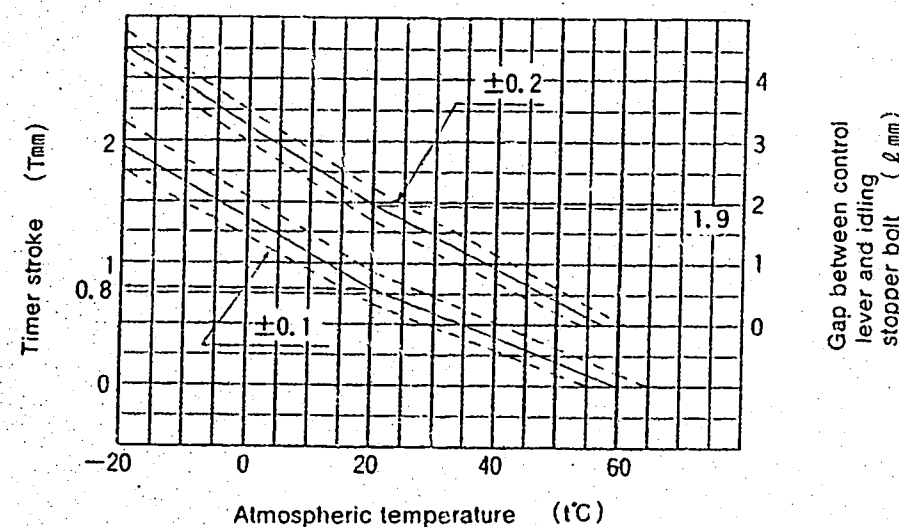


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : CD17

BOSCH No.9 460 610 067

DKKC No. 104748-2380

Date : 20.Nov.1986

Company : NISSAN

No. 16700 16A68

Injection pump No: 104648-2180 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

For Test Condition see
Microfiche No.WP-210(N16)

Pre-stroke : — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~ 2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~ 3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,200 | 1,800 | 2,500 |
| | mm | 1.7~ 2.5 | 4.0~ 5.2 | 6.8~ 8.0 |
| 2-2 Supply pump | N = rpm | 1,200 | 1,800 | 2,500 |
| | kg/cm ² | 3.0~ 3.8 | 4.4~ 5.2 | 6.1~ 6.9 |
| 2-3 Overflow delivery | N = rpm | 1,200 | | |
| | cc/10s | 36.0~80.0 | | |

2-4 Fuel Injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | 2.5 |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |

3. Dimensions

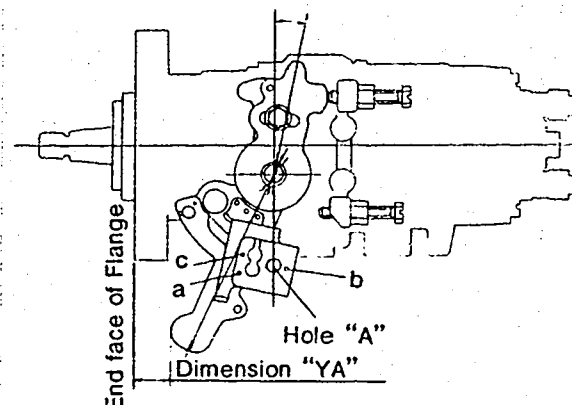
| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|----|-----------|-----|
| α | 1~1 | deg |
| YA | 15.4~18.1 | mm |
| β | 37.0~47.0 | deg |
| B | 10.7~14.8 | mm |
| γ | 10.5~11.5 | deg |
| C | 6.7~ 7.3 | mm |

Control Lever Angle Measurement Position

① Measure the control lever angles (α, β, γ) at hole A.



② Marking positions

The control lever is marked (painted) at the positions shown below, depending on control lever angle β.

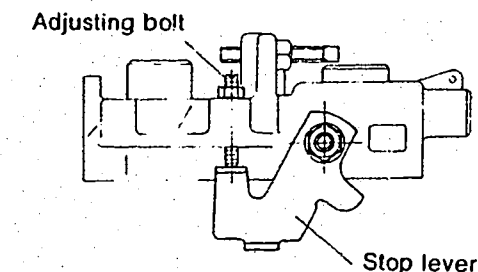
Position "a" ⇔ β ≤ 39.5° (B=11.7mm)

Position "b" ⇔ 39.5° (B=11.7mm) < β ≤ 42.5° (B=13.0mm)

Position "c" ⇔ β > 42.5° (B=13.0mm)

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

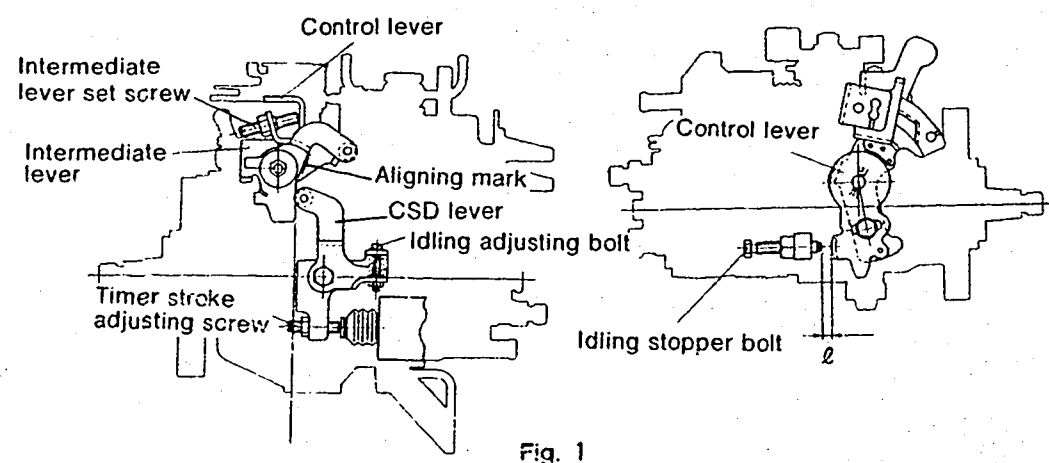


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.9 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0367t + 1.284$

When $20 \leq t \leq 40$: $T = -0.0275t + 1.1$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0867t + 3.63$

When $20 \leq t \leq 40$: $l = -0.075t + 3.4$

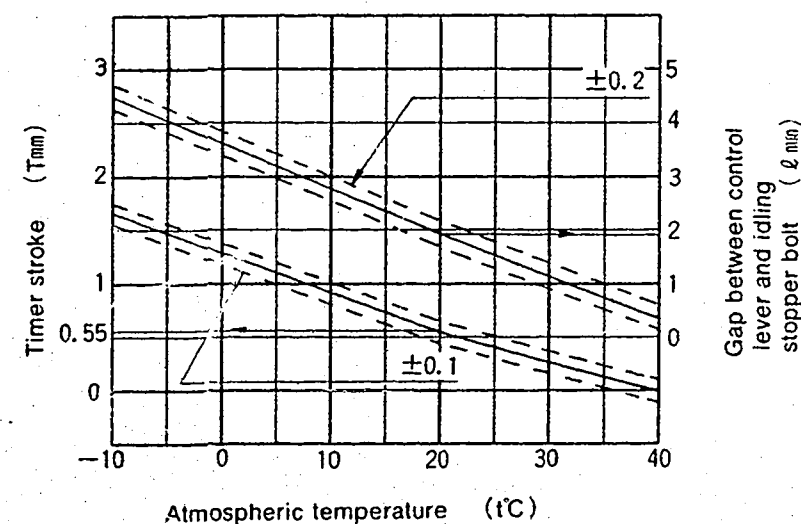


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

ENGINE MODEL : CD17

TEST OIL:
ISO 4113 or
SAE J967d

BOSCH No. 9 460 610 069
DKIC No. 104748-2400
Date: 20.Nov.1986
Company: NISSAN
No. 16700 16A78

Injection pump No: 104648-2180 [NP-VE4/8F2500LNP164]

Pump rotation : Counter clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.8~ 2.4 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~ 3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,200 | 29.5~30.5 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 400 | 8.3~11.3 (cc/1,000st) | | |
| 1-5 Start | 100 | 45.3~55.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.9~17.9 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,200 1.7~ 2.5 | 1,800 4.0~ 5.2 | 2,500 6.8~ 8.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,200 3.0~ 3.8 | 1,800 4.4~ 5.2 | 2,500 6.1~ 6.9 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,200 36.0~80.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,200 | 29.0~31.0 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 26.7~30.7 | | |
| | 2,700 | 11.4~18.4 | | |
| | 2,900 | Below 6 | | |
| Switch OFF | 400 | 0 | | |
| Idling position | 400 | 7.8~11.8 | | 2.5 |
| | 600 | Below 3 | | |
| Partial load | 700 | 13.3~20.0 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.5~1.7 mm |
| BCS | — mm |

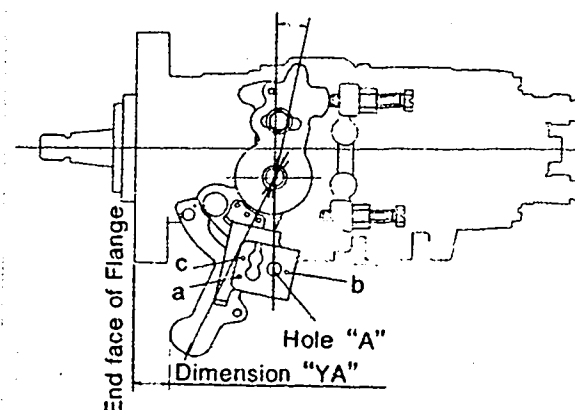
Control lever angle

| | |
|----|---------------|
| α | 1~—1 deg |
| YA | 15.4~18.1 mm |
| β | 37.0~47.0 deg |
| B | 10.7~14.8 mm |
| Y | 10.5~11.5 deg |
| C | 6.7~ 7.3 mm |

104748-2400 2/4

Control Lever Angle Measurement Position

① Measure the control lever angles (α, β, γ) at hole A.



② Marking positions

The control lever is marked (painted) at the positions shown below, depending on control lever angle β.

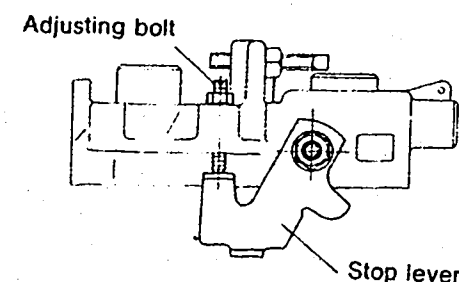
Position "a" ⇔ β ≤ 39.5° (B=11.7mm)

Position "b" ⇔ 39.5° (B=11.7mm) < β ≤ 42.5° (B=13.0mm)

Position "c" ⇔ β > 42.5° (B=13.0mm)

Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

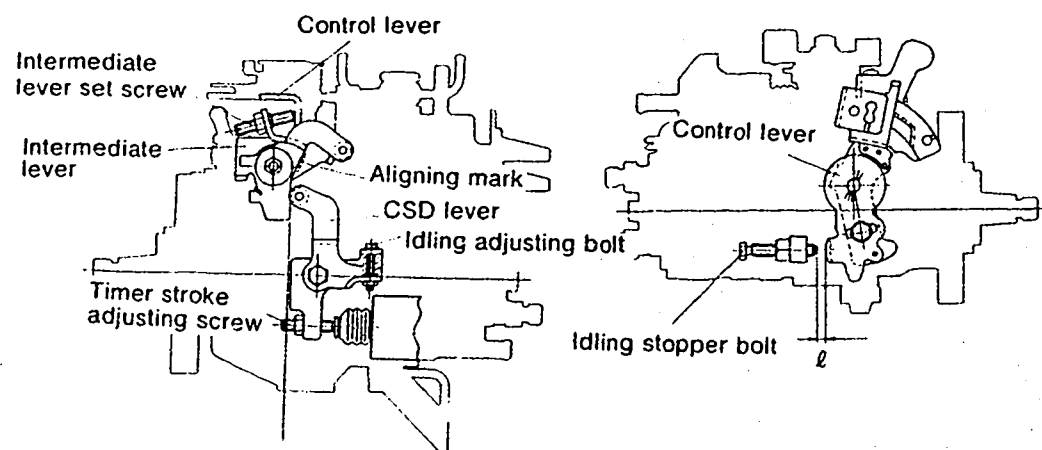


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 1.9 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediate lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $l \pm 0.05$ mm from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $-10 \leq t \leq 20$: $T = -0.0367t + 1.284$

When $20 \leq t \leq 40$: $T = -0.0275t + 1.1$

Formula for calculating control lever and idling stopper bolt gap:

When $-10 \leq t \leq 20$: $l = -0.0867t + 3.63$

When $20 \leq t \leq 40$: $l = -0.075t + 3.4$

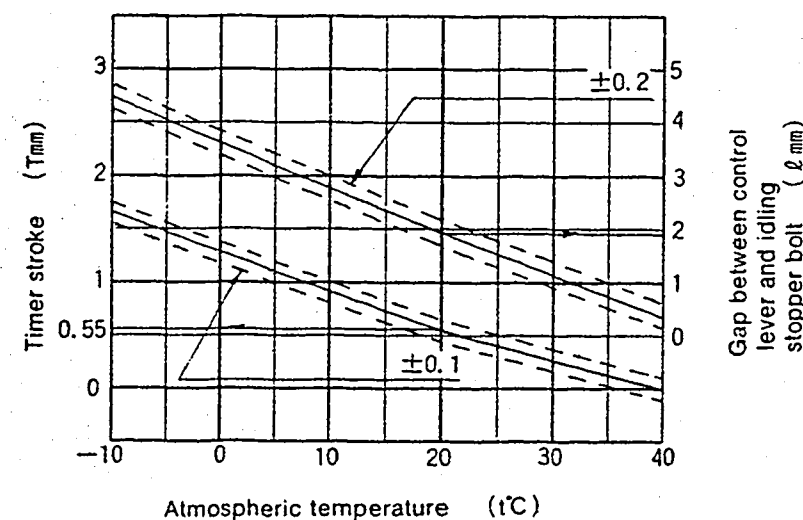


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : C190

Injection pump No: 104649-1080 [NP-VE4/9F2175RNP21]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 015

DKKC No. 104749-1020

Date : 20.Nov.1986 [0]

Company : ISUZU

No. 515601 0700

For Test Condition see
Microfiche No.WP-210(N16)

104749-1020

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 3.6~ 4.0 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 34.2~35.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 315 | 4.5~ 8.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 57 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,440 | 6.1~12.1 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 600~800 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|------------|----------|----------|
| 2-1 Timing device | N = rpm | 1,000 | 1,500 | 2,300 |
| | mm | 0.9~ 2.1 | 3.5~ 4.1 | 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm | 1,000 | 1,500 | 2,150 |
| | kg/cm ² | 3.8~ 4.4 | 5.2~ 5.6 | 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm | 1,000 | | |
| | cc/10s | 52.0~ 95.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 33.7~35.7 | | |
| | 600 | 23.8~27.8 | | |
| | 2,175 | 29.3~33.3 | | |
| | 2,440 | 6.1~12.1 | | |
| | 2,550 | Below 4.0 | | |
| Switch OFF | 315 | 0 | | |
| Idling position | 315 | 4.5~ 8.5 | | |
| | 365 | Below 3.5 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

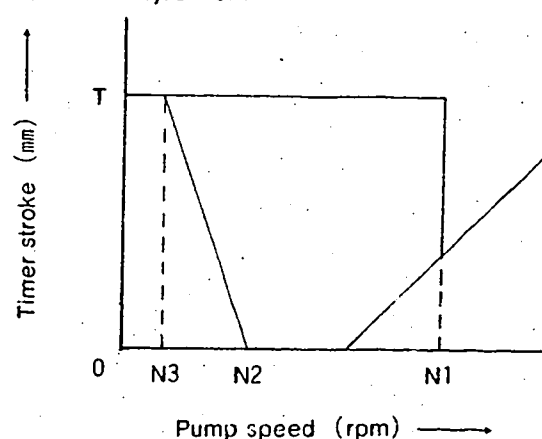
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | — | mm |
| β | 36.0~46.0 | deg |
| B | — | mm |
| γ | — | deg |
| C | — | mm |

CSD Adjustment



Standard values

N1 (Release speed) 600~800rpm

N2 Less than 225rpm

T 1.9~2.3mm

1) Bleed of air

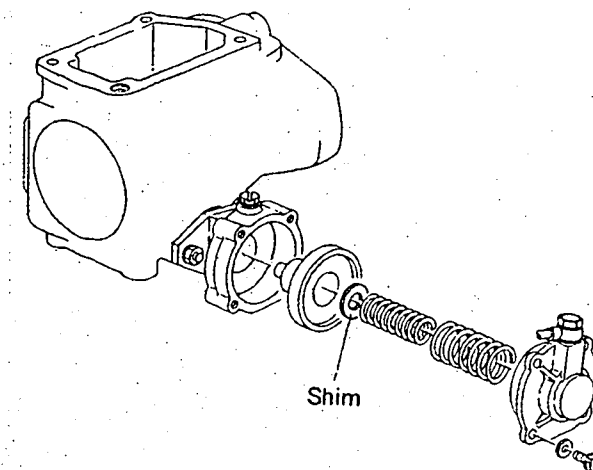
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 700 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : C190

BOSCH No.9 460 610 104

DKKC No. 104749-1060

Date : 20.Nov.1986

Company : ISUZU

No. 515601 0980

Injection pump No: 104649-1110 [NP-VE4/9F2225RNP27]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 3.6~ 4.0 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 34.2~35.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 4.5~ 8.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 57 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,650 | 5.0~11.0 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 600~800 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|---------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 0.9~ 2.1 | 1,500 3.5~ 4.1 | 2,300 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 3.8~ 4.4 | 1,500 5.2~ 5.6 | 2,150 6.5~ 7.1 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 52.0~ 95.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 33.7~35.7 | | |
| | 600 | 23.8~27.8 | | |
| | 2,225 | 29.5~33.5 | | |
| | 2,650 | 5.0~11.0 | | |
| | 2,800 | Below 4.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 4.5~ 8.5 | | |
| | 400 | Below 3.5 | | |

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|

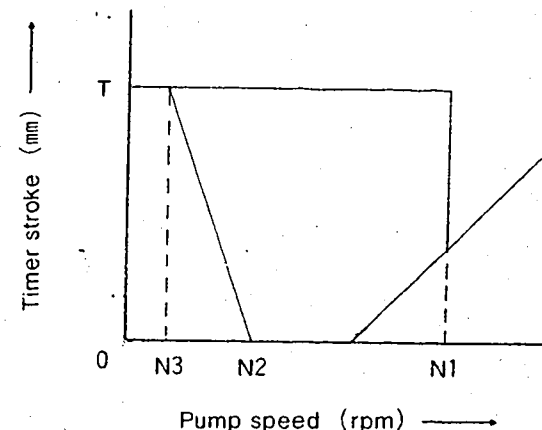
3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.7~1.9 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | — mm |
| β | 36.0~46.0 deg |
| B | — mm |
| γ | — deg |
| C | — mm |

CSD Adjustment



Standard values

N1 (Release speed) 600~800rpm

N2 Less than 225rpm

T 1.9~2.3mm

1) Bleed of air

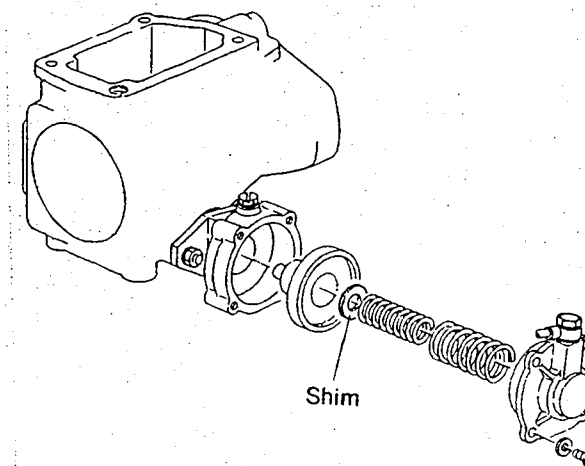
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 700 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

TEST OIL:
I S O 4113 or
S A E J967d

Distributor-type

MOTOR : CD17

BOSCH No.9 460 610 194

DKKC No. 104748-2450

Date : 20.Nov.1986

Company : NISSAN

No. 16700 62M00

Injection pump No: 104648-2450 [NP-VE4/8F2500LNP427]

Pump rotation : Counter clockwise-viewed from drive side

For Test Condition see
Microfiche No.WP-210(N16)

Pre-stroke : — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,200 | 1.5~ 2.1 (mm) | | |
| 1-2 Supply pump pressure | 1,200 | 3.1~ 3.7 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,000 | 27.1~28.1 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 360 | 3.7~ 6.7 (cc/1,000st) | | |
| 1-5 Start | 100 | 50.3~60.3 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,700 | 11.8~17.8 (cc/1,000st) | | |
| 1-7 | | | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,200 | 1,800 | 2,500 |
| | mm | 1.4~ 2.2 | 3.5~ 4.7 | 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm | 1,200 | 1,800 | 2,500 |
| | kg/cm ² | 3.0~ 3.8 | 4.4~ 5.2 | 6.1~ 6.9 |
| 2-3 Overflow delivery | N = rpm | 1,200 | | |
| | cc/10s | 36.0~80.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|--|----------------------------|------------------------|----------------------------|
| Full speed position | 1,000 | 26.6~28.6 | | |
| | 600 | 24.8~28.8 | | |
| | 2,500 | 24.3~28.3 | | |
| | 2,700 | 11.3~18.3 | | |
| | 2,900 | Below 6.0 | | |
| Switch OFF | 360 | 0 | | |
| Idling position | 360 | 3.2~7.2 Below 3.0 | | 2.5 |
| Partial load | 700 | 10.8~19.8 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

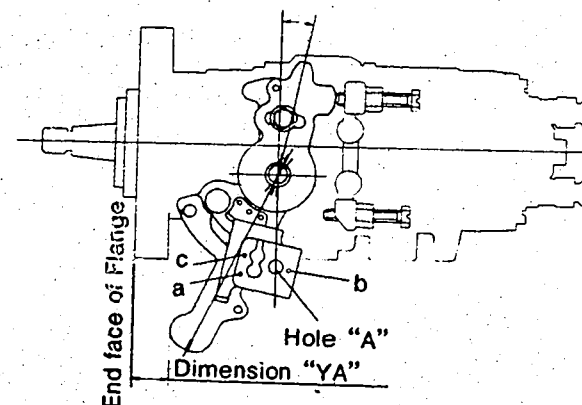
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.5~1.7 | mm |
| BCS | — | mm |

Control lever angle

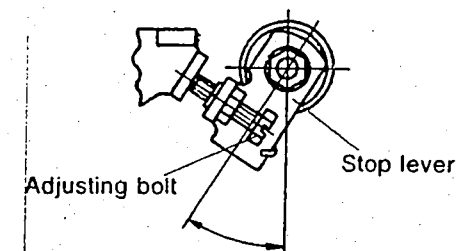
| | | |
|----------|-----------|-----|
| α | 1.0~-1.0 | deg |
| YA | 15.4~18.1 | mm |
| β | 39.0~49.0 | deg |
| B | 11.0~16.0 | mm |
| γ | 13.5~14.5 | deg |
| C | 8.6~ 9.2 | mm |

■ Control Lever Angle Measurement Position

① Measure the control lever angles (α, β, γ) at hole A.

■ Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right) .

**DIESEL KIKI**

DIESEL KIKI CO. LTD.
Service Department

3-6-7 SHIBUYA, SHIBUYA-KU, TOKYO 150, JAPAN
Tel. (03) 400-1551 · Fax: (03) 499-4115

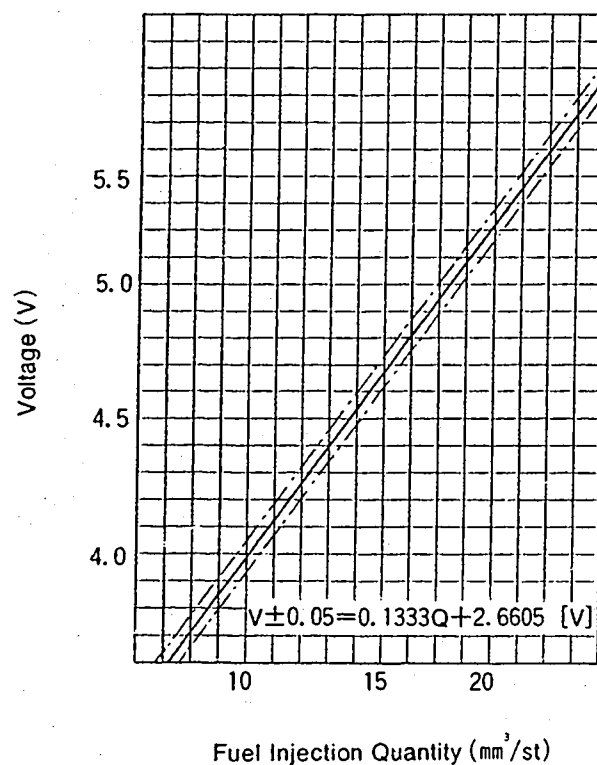
POTENTIONMETER ADJUSTMENT

Under the following conditions, after potentionmeter installation position so that the out-put voltage equale the specified value.

| Adjustment Conditions | | | Specified Value | Remarks |
|------------------------|------------------|------------------------------------|--------------------------------------|-----------------|
| Control lever position | Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Adjustment Value Out-put voltage (V) | |
| (Approx 14°) | 700 | measure | measure | Adjusting point |
| Idel | — | — | — | Check point |
| Full speed | — | — | — | Check point |

[In-put Voltage: 10V]

※ A control lever position of approximately 14° , means that a block gauge of 8.9 mm thickness is inserted between the control lever and the idling stopper bolt.



W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

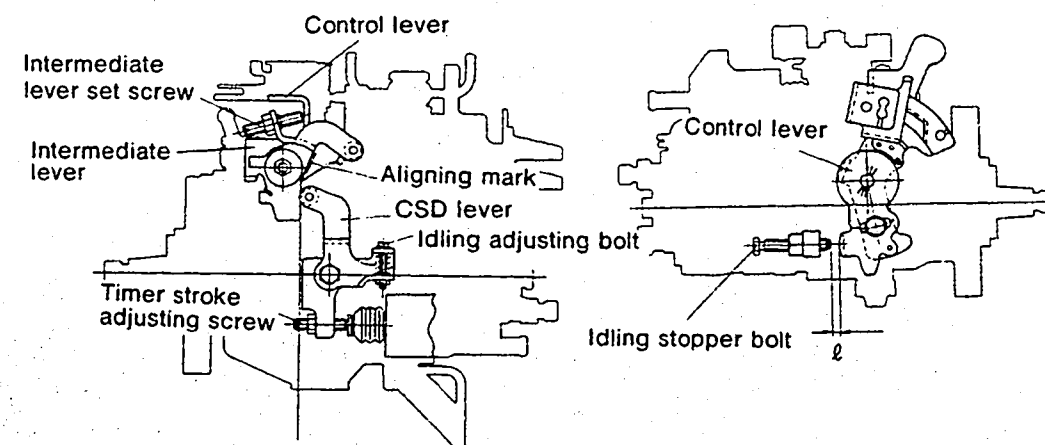


Fig. 1

2) Intermediate lever position adjustment

1. Insert a block gauge (thickness gauge) of 4.1 ± 0.05 mm thickness between the control lever and the idling stopper bolt.
2. Align the intermediate lever with the aligning mark.
3. Adjust the intermediare lever set screw so that the control lever and intermediate lever set screw are in contact, and then fix in position using the locknut.

3) CSD lever adjustment

1. Calculate the block gauge dimension $\ell \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling bolt, adjust so that the CSD lever roller and intermediate lever are in contact.

Notes :

1. The temperature of the wax must be below 30°C when adjusting.
2. When inserting a block gauge (thickness gauge) between the control lever (beacket) and the idling stopper bolt, use the idling adjusting bolt to separate the CSD lever and intermediate lever so that no excessive force is exerted on them.

Formula for calculating Fig. 2

Formula for calculating timer stroke:

When $10 \leq t \leq 20$ $T = -0.027t + 1.09$

When $20 \leq t \leq 40$ $T = -0.0275t + 1.1$

Formula for calculating control lever and idling stopper bolt gap:

When $t \leq 10$ $\ell = 4.6$

When $10 < t \leq 20$ $\ell = -0.17t + 6.3$

When $20 < t \leq 28.5$ $\ell = -0.235t + 7.6$

When $28.5 < t \leq 36$ $\ell = -0.12t + 4.32$

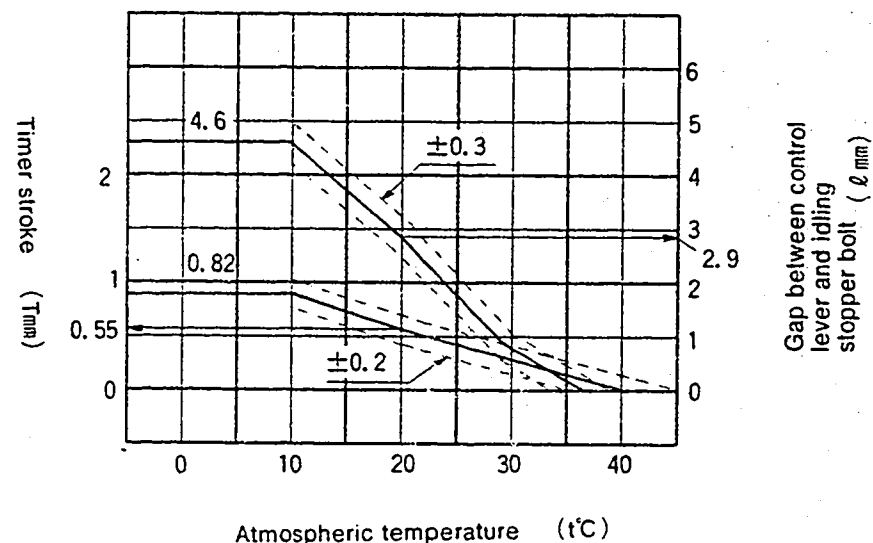


Fig. 2

INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : C223

Injection pump No: 104649-1170 [NP-VE4/9F2175RNP78]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 016

DKKC No. 104749-1170

Date : 20.Nov.1986

Company : ISUZU

No. 51560* 0861

For Test Condition see
Microfiche No.WP-210(N16)

104749-1170

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 40.1~41.1 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 5.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,440 | 10.4~16.4 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 500~700 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|---------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.1~ 4.7 | 2,175 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 3.8~ 4.4 | 1,500 5.2~ 5.6 | 2,175 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 52.0~ 95.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 39.6~41.6 | | |
| | 600 | 30.0~34.0 | | |
| | 2,175 | 34.7~38.7 | | |
| | 2,440 | 10.4~16.4 | | |
| | 2,550 | Below 6.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 5.5~ 9.5 | | |
| | 450 | Below 3 | | |

| | |
|--------------|--|
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V |
|--------------|--|

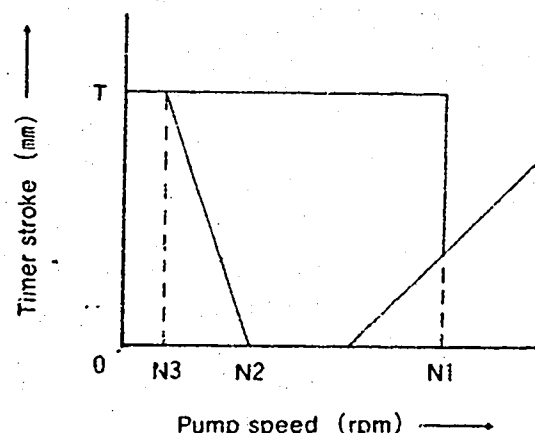
3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.7~1.9 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | — mm |
| β | 36.5~46.5 deg |
| B | — mm |
| γ | — deg |
| C | — mm |

CSD Adjustment



Standard values

| | |
|--------------------|------------------|
| N1 (Release speed) | 500~700rpm |
| N2 | Less than 225rpm |
| T | 2.7~3.1mm |

1) Bleed of air

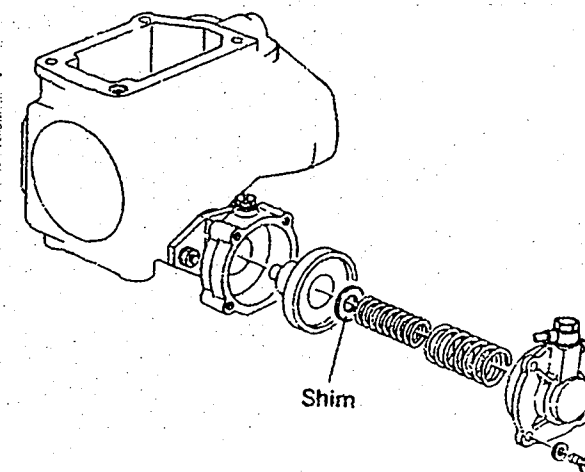
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
I S O 4113 or
S A E J967d

MOTOR : C223

Injection pump No: 104649-1170 [NP-VE4/9F2175RNP78]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 106

DKKC No. 104749-1180

Date : 20.Nov.1986 0

Company : ISUZU

No. 515601 2371

For Test Condition see
Microfiche No.WP-210(N16)

104749-1180

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 40.1~41.1 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 5.5~ 9.5 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,440 | 10.4~16.4 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 500~700 | Release speed | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|------------|----------|----------|
| 2-1 Timing device | N = rpm | 1,000 | 1,500 | 2,175 |
| | mm | 1.6~ 2.8 | 4.1~ 4.7 | 6.9~ 7.8 |
| 2-2 Supply pump | N = rpm | 1,000 | 1,500 | 2,175 |
| | kg/cm ² | 3.8~ 4.4 | 5.2~ 5.6 | 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm | 1,000 | | |
| | cc/10s | 52.0~ 95.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 39.6~41.6 | | |
| | 600 | 30.0~34.0 | | |
| | 2,175 | 34.7~38.7 | | |
| | 2,440 | 10.4~16.4 | | |
| | 2,550 | Below 6.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 5.5~ 9.5 | | |
| | 450 | Below 3 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

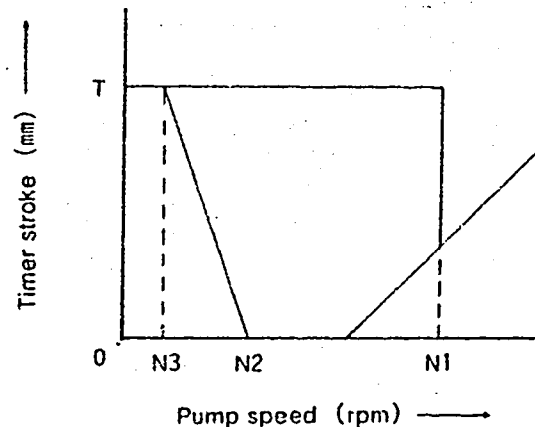
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | — | mm |
| β | 36.5~46.5 | deg |
| B | — | mm |
| γ | — | deg |
| C | — | mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 225rpm

T 2.7~3.1mm

1) Bleed of air

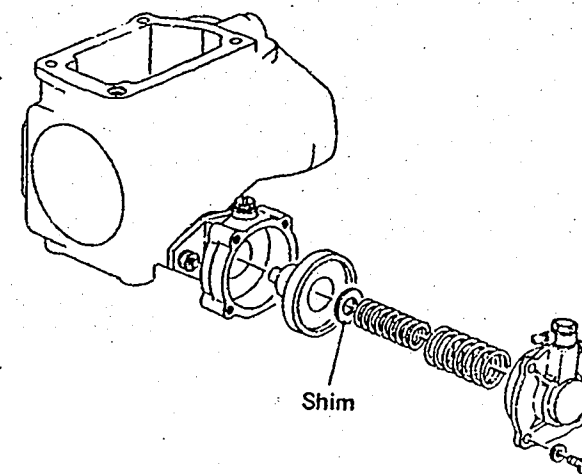
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600±100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
I S G 4113 or
S A E J967d

ENGINE MODEL : C223

Injection pump No: 104649-1170 [NP-VE4/9F2175RNP78]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 107

DKKC No. 104749-1350

Date : 20.Nov.1986 [0]

Company : ISUZU

No. 894110 6540

For Test Condition see
Microfiche No.WP-210(N16)

104749-1350

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 39.9~40.9 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 5.5~ 9.5 (cc/1,000st) | | 2 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,440 | 10.1~16.1 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 500~700 | (Release speed) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | | |
|-----------------------|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.1~ 4.7 | 2,175 7.0~ 7.9 | |
| 2-2 Supply pump | N = rpm kg/cm ² | 250 1.6~ 2.2 | 1,000 3.8~ 4.4 | 1,500 5.2~ 5.6 | 2,175 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm cc/10s | 100 48.0~ 92.0 | | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 39.4~41.4 | | |
| | 600 | 30.7~34.7 | | |
| | 1,000 | 33.7~37.7 | | |
| | 2,175 | 34.6~38.8 | | |
| | 2,440 | 9.6~16.6 | | |
| | 2,550 | Below 5.5 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 5.5~ 9.5 | | |
| | 450 | Below 3 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

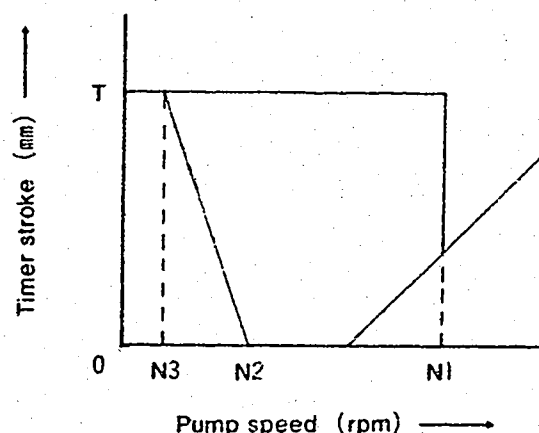
3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.7~1.9 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | 9.5~12.2 mm |
| β | 36.5~46.5 deg |
| B | 11.8~14.9 mm |
| γ | — deg |
| C | — mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm
N2 Less than 225rpm
T 2.7~3.1mm

1) Bleed of air

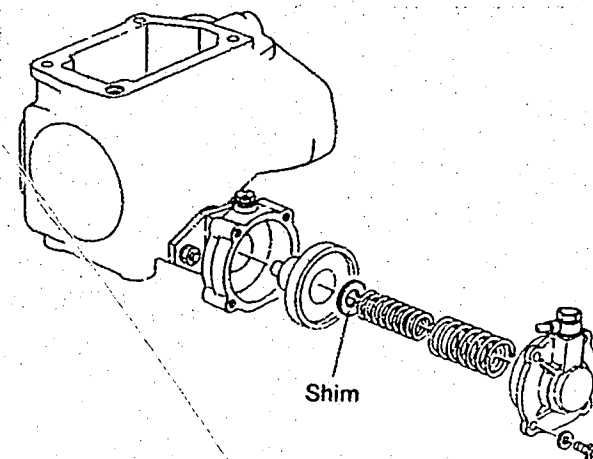
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : C223

Injection pump No: 104649-1170 [NP-VE4/9F2175RNP78]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 108

DKKC No. 104749-1360

Date : 20.Nov.1986 [0]

Company : ISUZU

No. 894110 6550

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,500 | 39.9~40.9 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 5.5~ 9.5 (cc/1,000st) | | 2 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,440 | 10.1~16.1 (cc/1,000st) | | |
| 1-7 CSD Adjustment | 500~700 | (Release speed) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|------------|----------|----------|
| 2-1 Timing device | N = rpm | 1,000 | 1,500 | 2,175 |
| | mm | 1.6~ 2.8 | 4.1~ 4.7 | 7.0~ 7.9 |
| 2-2 Supply pump | N = rpm | 250 | 1,000 | 1,500 |
| | kg/cm ² | 1.6~ 2.2 | 3.8~ 4.4 | 5.2~ 5.6 |
| 2-3 Overflow delivery | N = rpm | 100 | | 2,175 |
| | cc/10s | 48.0~ 92.0 | | 6.6~ 7.2 |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,500 | 39.4~41.4 | | |
| | 600 | 30.7~34.7 | | |
| | 1,000 | 33.7~37.7 | | |
| | 2,175 | 34.6~38.8 | | |
| | 2,440 | 9.6~16.6 | | |
| | 2,550 | Below 5.5 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 5.5~ 9.5 | | |
| | 450 | Below 3 | | |

2-5 Solenoid
Max.cut-in voltage : 8 V
Test voltage : 12~14 V

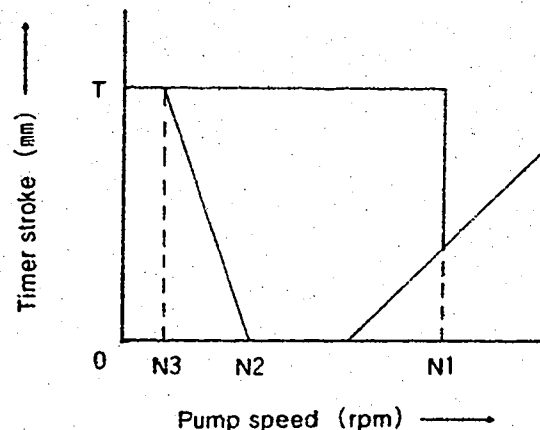
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 9.5~12.2 | mm |
| β | 36.5~46.5 | deg |
| B | 11.8~14.9 | mm |
| γ | — | deg |
| C | — | mm |

■ CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 225rpm

T 2.7~3.1mm

1) Bleed of air

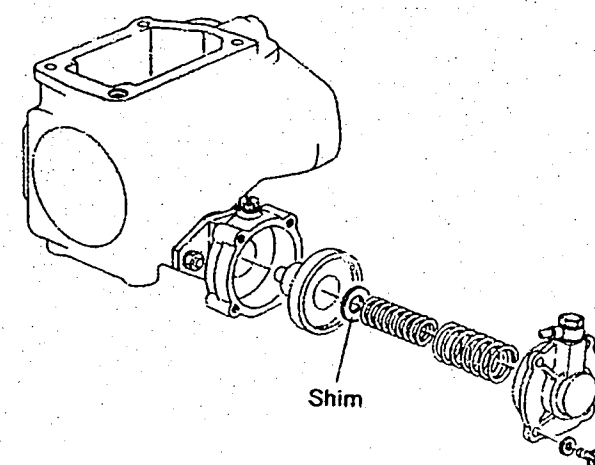
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : C223

Injection pump No: 104649-1360 (NP-VE4/9F2175RNP223)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

BOSCH No.9 460 610 115

DKKC No. 104749-1510

Date : 20.Nov.1986 [0]

Company : ISUZU

No. 894124 8430

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 35.8~36.8 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 5.6~ 9.6 (cc/1,000st) | | 2 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 7.8~13.8 (cc/1,000st) | | 3 |
| 1-7 CSD Adjustment | 500~700 | (Release speed) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.1~ 4.7 | 2,175 7.0~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 3.8~ 4.4 | 1,500 5.2~ 5.6 | 2,175 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 48.0~92.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|--|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 35.3~37.3 | | |
| | 600 | 29.7~33.7 | | |
| | 2,175 | 32.0~36.2 | | |
| | 2,550 | 7.3~14.3 | | |
| | 2,700 | Below 3.5 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 | 5.6~9.6 | | |
| | 500 | Below 3 | | |
| 2-5 Solenoid | Max.cut-in voltage : 8 V Test voltage : 12~14 V | | | |

3. Dimensions

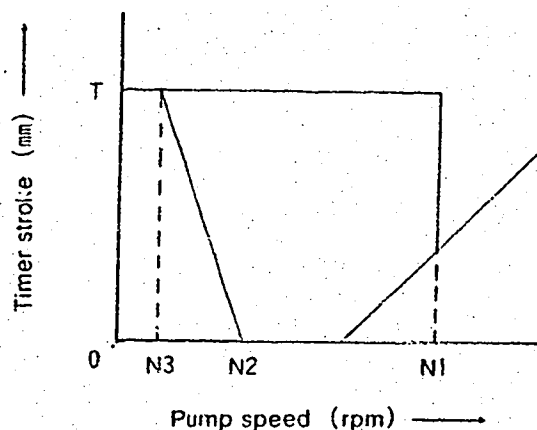
| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| ECS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 9.6~12.2 | mm |
| β | 37.0~47.0 | deg |
| B | 11.9~15.1 | mm |
| γ | — | deg |
| C | — | mm |

104749-1510

CSD Adjustment



Standard values

| | |
|--------------------|------------------|
| N1 (Release speed) | 500~700rpm |
| N2 | Less than 225rpm |
| T | 2.7~3.1mm |

1) Bleed of air

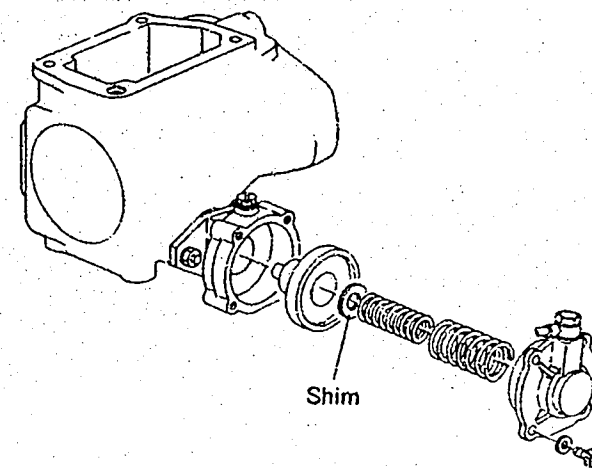
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : C223

BOSCH No.9 460 610 122

DKKC No. 104749-1580

Date : 20.Nov.1986 0

Company : ISUZU

No. 894124 8580

104749-1580

Injection pump No: 104649-1380 (NP-VE4/9F2175RNP225)

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 35.8~36.8 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 5.6~ 9.6 (cc/1,000st) | | 2 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 7.8~13.8 (cc/1,000st) | | 3 |
| 1-7 CSD Adjustment | 500~700 | (Release speed) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 1,000 1.6~ 2.8 | 1,500 4.1~ 4.7 | 2,175 7.0~ 7.8 |
| 2-2 Supply pump | N = rpm kg/cm ² | 1,000 3.8~ 4.4 | 1,500 5.2~ 5.6 | 2,175 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,000 48.0~92.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 35.3~37.3 | | |
| | 1,500 | 29.7~33.7 | | |
| | 2,175 | 32.0~36.2 | | |
| | 2,550 | 7.3~14.3 | | |
| | 2,700 | Below 2.5 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 | 5.6~9.6 | | |
| | 500 | Below 3 | | |

2-5 Solenoid
Max.cut-in voltage : 8 V
Test voltage : 12~14 V

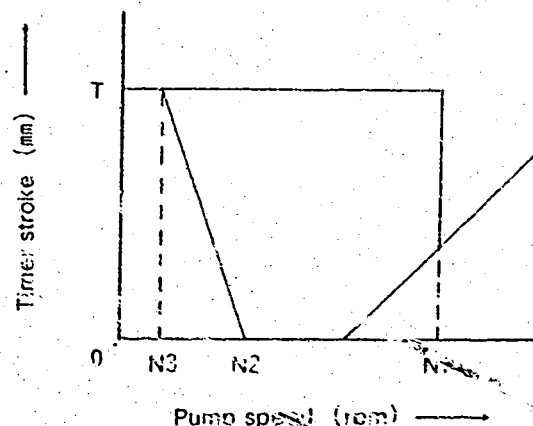
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 9.6~12.2 | mm |
| β | 37.0~47.0 | deg |
| B | 11.9~15.1 | mm |
| γ | — | deg |
| δ | — | mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 225rpm

T 2.7~3.1mm

1) Bleed of air

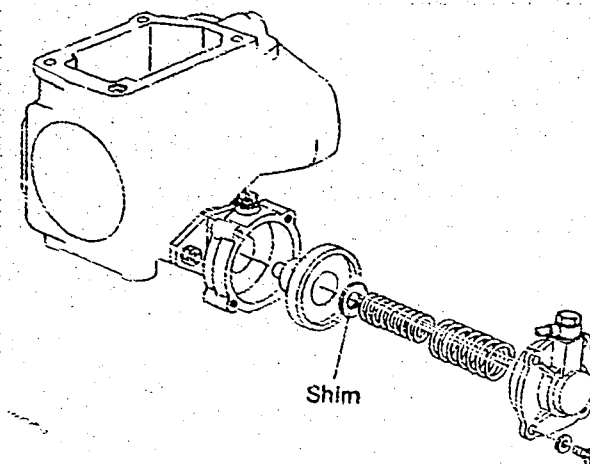
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600 ± 100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA

Distributor-type

TEST OIL:
ISO 4113 or
SAE J967d

MOTOR : C223

BOSCH No.9 460 610 123

DKKC No. 104749-1590

Date : 20.Nov.1986

Company : ISUZU

No. 894124 8590

104749-1590

Injection pump No: 104649-1380 [NP-VE4/9F2175RNP225]

Pump rotation : clockwise-viewed from drive side

For Test Condition see
Microfiche No.WP-210(N16)

Pre-stroke : — mm

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,500 | 4.2~ 4.6 (mm) | | |
| 1-2 Supply pump pressure | 1,500 | 5.2~ 5.6 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 35.8~36.8 (cc/1,000st) | | 3 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 5.6~ 9.6 (cc/1,000st) | | 2 |
| 1-5 Start | 100 | Above 63 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,550 | 7.8~13.8 (cc/1,000st) | | 3 |
| 1-7 CSD Adjustment | 500~700 | (Release speed) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|--------------------|-----------|----------|----------|
| 2-1 Timing device | N = rpm | 1,000 | 1,500 | 2,175 |
| | mm | 1.6~ 2.8 | 4.1~ 4.7 | 7.0~ 7.8 |
| 2-2 Supply pump | N = rpm | 1,000 | 1,500 | 2,175 |
| | kg/cm ² | 3.8~ 4.4 | 5.2~ 5.6 | 6.6~ 7.2 |
| 2-3 Overflow delivery | N = rpm | 1,000 | | |
| | cc/10s | 48.0~92.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 35.3~37.3 | | |
| | 600 | 29.7~33.7 | | |
| | 2,175 | 32.0~36.2 | | |
| | 2,550 | 7.3~14.3 | | |
| | 2,700 | Below 3.5 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 375 | 5.6~9.6 | | |
| | 500 | Below 3 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

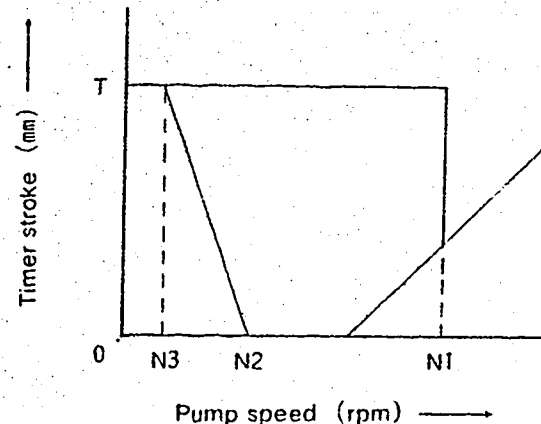
3. Dimensions

| | | |
|-----|---------|----|
| K | 3.2~3.4 | mm |
| KF | 5.7~5.9 | mm |
| MS | 1.7~1.9 | mm |
| BCS | — | mm |

Control lever angle

| | | |
|---|-----------|-----|
| α | 21.0~29.0 | deg |
| A | 9.6~12.2 | mm |
| β | 37.0~47.0 | deg |
| B | 11.9~15.1 | mm |
| γ | — | deg |
| C | — | mm |

CSD Adjustment



Standard values

N1 (Release speed) 500~700rpm

N2 Less than 225rpm

T 2.7~3.1mm

1) Bleed of air

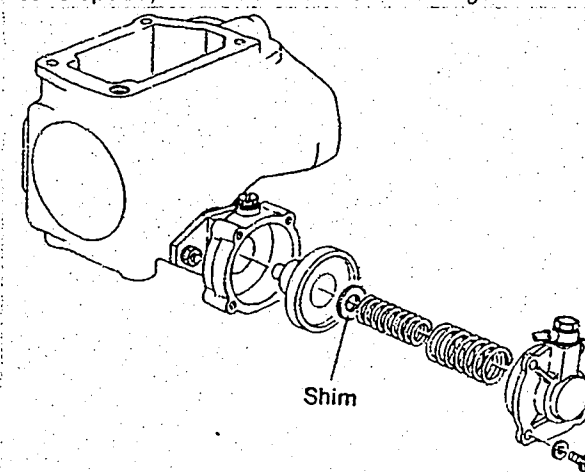
1. Run the engine at N1 or above.
2. Gradually decrease the pump speed and check the 0 point of the measuring device.
3. Run the pump at a speed midway between N2 and N3.
4. Check that the test oil flows from the CSD overflow.

2) Adjustment

1. Check that the timer stroke is T when the pump is stopped.
2. Adjust the shim thickness so that at the CSD release point the timer piston begins moving in the timer stroke decrease direction at a pump speed of 600±100 rpm.
3. Gradually decrease the pump speed, and check that the CSD begins to operate at speeds less than N2.

Note :

When measuring the release speed, check that there is no leakage from the CSD overflow.



INJ. PUMP CALIBRATION DATA Distributor-type

TEST OIL:
I S O 4113 or
S A E J967d

ENGINE MODEL : LD20E

Injection pump No: 104749-2230 [NP-VE4/9F2200RNP465]

Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

1/3
BOSCH No.9 460 610 195

DKKC No. 104749-2230

Date : 20.Nov.1986 ①

Company : NISSAN(MISA)

No. 16700 D9700

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|-------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 900 | T=1.3~1.7 (mm) | | |
| 1-2 Supply pump pressure | 900 | 3.2~3.8 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 2,200 | 30.2~31.2 (cc/1,000st) | | 2.5 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 350 | 4.7~7.7 (cc/1,000st) | | |
| 1-5 Start | 100 | 40.0~50.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,570 | 10.4~16.4 (cc/1,000st) | | |
| 1-7 Load-timer adjustment | 900 | 0.65±0.20 (mm) | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|------------------|------------------|------------------|
| 2-1 Timing device | N = rpm mm | 900 1.2~1.8 | 1,800 5.5~6.7 | 2,200 7.2~8.4 |
| 2-2 Supply pump | N = rpm kg/cm ² | 900 3.1~3.9 | 1,800 5.1~5.9 | 2,200 6.0~6.8 |
| 2-3 Overflow delivery | N = rpm cc/10s | 900 35.0~79.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 2,200 | 29.7~31.7 | | |
| | 900 | 29.0~33.0 | | |
| | 2,570 | 9.9~16.9 | | |
| | 2,800 | Below 6.0 | | |
| Switch OFF | 350 | 0 | | |
| Idling position | 350 | 4.2~8.2 | | 2.5 |
| | 500 | Below 3.0 | | |
| Partial load | 900 | 4.1~14.1 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

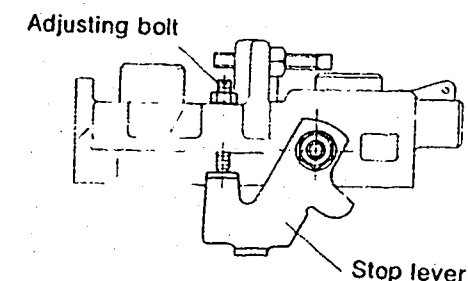
| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.1~1.3 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 21.0~29.0 deg |
| A | 4.3~9.6 mm |
| β | 36.0~46.0 deg |
| B | 10.9~14.6 mm |
| γ | 10.5~11.5 deg |
| C | 6.9~7.5 mm |

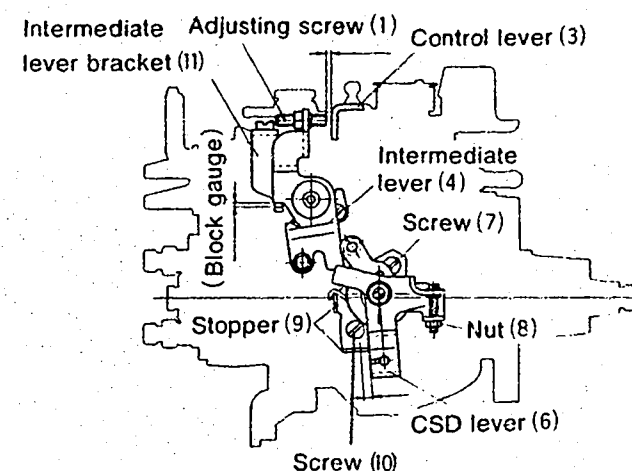
Starting Injection Quantity Adjustment

Adjust the starting injection quantity
(item 1/5) using the adjusting bolt
(as shown in the figure at right).



M-CSD Adjustment

- 1) Fix the intermediate lever adjustment screw in position. (Adjust with the M-CSD released)
 1. Hold the control lever (3) in the idling position.
 2. Move the adjusting screw to a horizontal position.
 3. Adjust using the adjusting screw (1) so that the gap between the control lever (3) and the adjusting screw (1) is 1~2mm, and then fix using the nut.



2) Fixing the M—CSD stopper (9)

- 1 . Turn the drive shaft slowly, and fix the drive shaft in a position where a load is applied (the point where the roller in the roller holder contacts the cam surface of the cam disc) .
- 2 . Move the CSD lever (6) to the advance side.
- 3 . Fix the CSD lever in the position where the ball pin at the tip of the shaft lightly contacts the roller holder (roller holder advance angle "0") .
- 4 . Move the CSD lever to the advance side.
- 5 . Then, adjust the position of the stopper (9) so that the timer stroke is 1.8 ± 0.2 mm, and fix the stopper (9) using the screw (10).

3) Screw (7) Adjustment

- 1 . Fix the control lever in the idling position.
- 2 . Move the CSD lever to the advance side.
- 3 . Then, adjust the screw (7) so that the clearance between the control lever and the idling stopper bolt is 7.2 ± 0.5 mm, and fix the screw (7) using the nut (8) .

INJ. PUMP CALIBRATION DATA **Distributor-type**

TEST OIL:
ISO 4113 or
SAE J967d

ENGINE MODEL : 4D65

Injection pump No: 104649-3000 [NP-VE4/9F2250RNP249]

BOSCH No.9 460 610 078

DKKC No. 104749-3000

Date : 20.Nov.1986

Company : MITSUBISHI

No. MD074608

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Pump rotation : clockwise-viewed from drive side

Pre-stroke : — mm

For Test Condition see
Microfiche No.WP-210(N16)

| 1. Setting | Pump speed (rpm) | Settings | Charge air press(mmHg) | Difference in delivery(cc) |
|--|------------------|--------------------------------|------------------------|----------------------------|
| 1-1 Timing device travel | 1,250 | T=4.1~ 4.5 (mm) | | |
| 1-2 Supply pump pressure | 1,250 | 4.5~ 5.1 (kg/cm ²) | | |
| 1-3 Full load delivery without charge air pressure | 1,250 | 34.2~35.2 (cc/1,000st) | | 3.0 |
| Full load delivery with charge air pressure | | (cc/1,000st) | | |
| 1-4 Idle speed regulation | 375 | 5.0~ 8.0 (cc/1,000st) | | 2.0 |
| 1-5 Start | 100 | 43.0~63.0 (cc/1,000st) | | |
| 1-6 Full-load speed regulation | 2,750 | 3.5~ 9.5 (cc/1,000st) | | |
| 1-7 Load-timer Adjustment | 1,250 | T-0.5±0.2mm | | |
| 1-8 | | | | |

2. Test Specifications

| | | | | |
|-----------------------|-------------------------------|--------------------|-------------------|-------------------|
| 2-1 Timing device | N = rpm mm | 600 0.7~ 1.9 | 1,250 3.9~ 4.7 | 2,250 8.0~9.0 |
| 2-2 Supply pump | N = rpm kg/cm ² | 600 2.9~ 3.5 | 1,250 4.5~ 5.1 | 2,250 6.8~ 7.4 |
| 2-3 Overflow delivery | N = rpm cc/10s | 1,250 48.0~92.0 | | |

2-4 Fuel injection quantities

| Speed control lever position | Pump speed (rpm) | Fuel delivery (cc/1,000st) | Charge air press(mmHg) | Difference in delivery(cc) |
|------------------------------|------------------|----------------------------|------------------------|----------------------------|
| Full speed position | 1,250 | 33.7~35.7 | | |
| | 600 | 28.7~32.7 | | |
| | 2,250 | 29.2~33.2 | | |
| | 2,750 | 1.5~11.5 | | |
| | 3,000 | Below 3 | | |
| Switch OFF | 375 | 0 | | |
| Idling position | 600 | Below 3 | | |
| | 375 | 6.0~10.0 | | |

2-5 Solenoid Max.cut-in voltage : 8 V
Test voltage : 12~14 V

3. Dimensions

| | |
|-----|------------|
| K | 3.2~3.4 mm |
| KF | 5.7~5.9 mm |
| MS | 1.3~1.5 mm |
| BCS | — mm |

Control lever angle

| | |
|---|---------------|
| α | 55.0~63.0 deg |
| A | 10.5~16.0 mm |
| β | 36.0~46.0 deg |
| B | 10.5~15.0 mm |
| Y | — deg |
| C | — mm |

LOAD TIMER ADJUSTMENT

1) Adjustment

- ① Fix the control lever in the position satisfying the following conditions.

Boost Pressure : — mmHg

Pump Speed : 1250 rpm

Fuel Injection : 21.6±1 cc/1000st
Quantity

- ② With the control lever positioned as described in ① above, adjust the governor sleeve so that the Timer Stroke conforms to the specified values (page 1/5)

2) Confirmation of Timer Characteristics

Fix the control lever in the position satisfying the following conditions, and confirm the Timer Stroke.

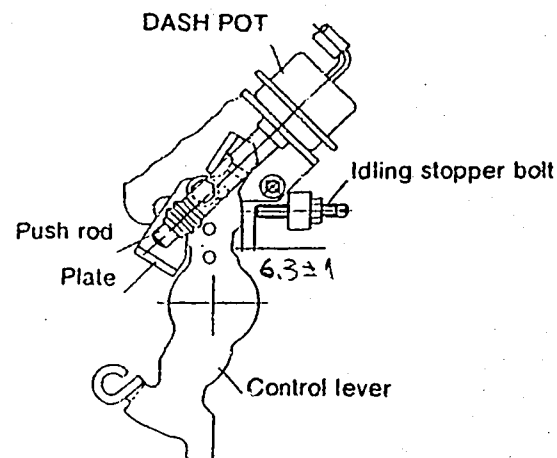
| Control lever position | | | Specified Values | |
|------------------------|------------------------------------|-----------------------|-------------------|-----------------------------------|
| Pump speed (rpm) | Fuel Injection Quantity(cc/1000st) | Boost pressure (mmHg) | Timer stroke (mm) | Timer stroke reduction value (mm) |
| 1250 | 20.1~23.1 | — | (3.8) | 0.1~0.9 |
| 1250 | 10.1~13.1 | — | (2.5~3.7) | 11.2 |

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104749-3000 4/5

■ DASH POT ADJUSTMENT

- ① Insert a block gauge (thickness gauge) of thickness 6.3 ± 1 in the gap between the control lever and the idling stopper bolt. (control lever angle : $10^\circ \pm 2^\circ$)
- ② With the control lever positioned as described in ① above, adjust the plate position so that the control lever plate and the dash pot push rod are in contact.



■ W-CSD Adjustment

1) Timer stroke adjustment

1. Calculate the timer stroke from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Adjust using timer stroke adjusting screw so that the timer stroke is as calculated in Step 1.

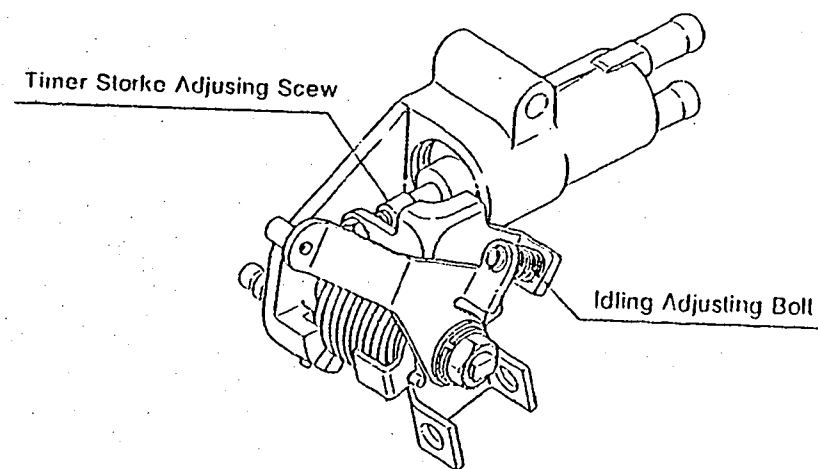


Fig. 1

2) CSD lever adjustment

1. Calculate the block gauge dimension $2 \pm 0.05\text{mm}$ from Fig. 2 according to the atmospheric temperature at the time of adjustment.
2. Insert the block gauge (thickness gauge) between the control lever and the idling stopper bolt.
3. Using the idling adjusting bolt, adjust so that the CSD lever and control lever are in contact.

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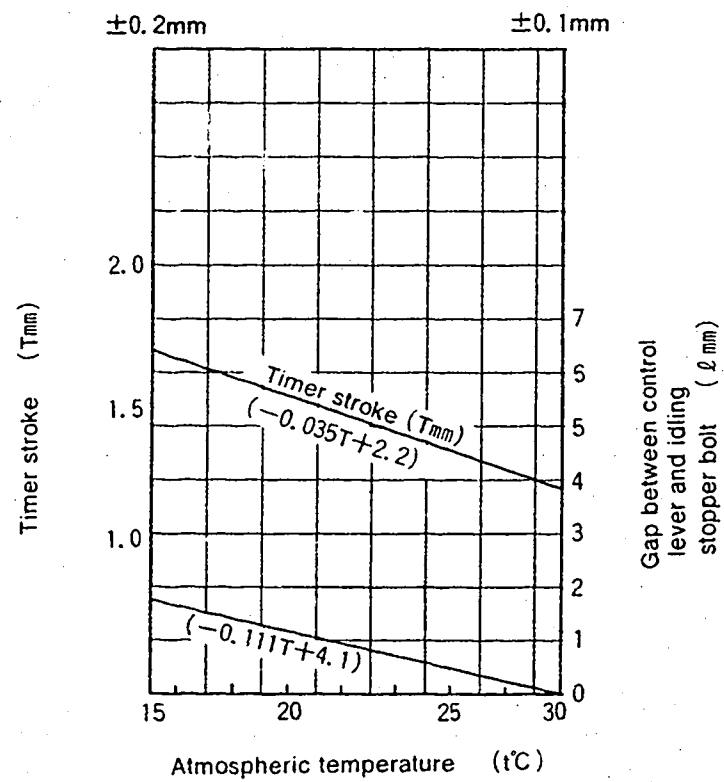


Fig. 2

Table of Contents (BOSCH No. — DKKC No.)

| BOSCH No. | DKKC No. | Location | BOSCH No. | DKKC No. | Location |
|---------------|-------------|------------------|---------------|-------------|------------------|
| 9 460 610 003 | 104740-3360 | WP-212 C-15 | 9 460 610 107 | 104749-1350 | WP-212 G-6 |
| 9 460 610 013 | 104748-2071 | WP-212 E-15~E-16 | 9 460 610 108 | 104749-1360 | WP-212 G-7 |
| 9 460 610 014 | 104748-2091 | WP-212 F-1~F-2 | 9 460 610 115 | 104749-1510 | WP-212 G-8 |
| 9 460 610 015 | 104749-1020 | WP-212 F-15 | 9 460 610 122 | 104749-1580 | WP-212 G-9 |
| 9 460 610 016 | 104749-1170 | WP-212 G-4 | 9 460 610 123 | 104749-1590 | WP-212 G-10 |
| 9 460 610 022 | 104740-0111 | WP-212 B-1 | 9 460 610 125 | 104740-2051 | WP-212 B-8~B-9 |
| 9 460 610 032 | 104740-3090 | WP-212 B-16 | 9 460 610 130 | 104740-0112 | WP-212 B-1 |
| 9 460 610 035 | 104740-3210 | WP-212 C-1 | 9 460 610 132 | 104740-2060 | WP-212 B-10~B-11 |
| 9 460 610 036 | 104740-3220 | WP-212 C-2 | 9 460 610 133 | 104740-2070 | WP-212 B-12~B-13 |
| 9 460 610 037 | 104740-3250 | WP-212 C-3~C-4 | 9 460 610 163 | 104740-4311 | WP-212 D-14 |
| 9 460 610 038 | 104740-3260 | WP-212 C-5~C-6 | 9 460 610 171 | 104748-0050 | WP-212 D-15~D-16 |
| 9 460 610 039 | 104740-3270 | WP-212 C-7~C-8 | 9 460 610 173 | 104748-0174 | WP-212 E-9~E-11 |
| 9 460 610 040 | 104740-3280 | WP-212 C-9~C-10 | 9 460 610 178 | 104748-1190 | WP-212 E-14 |
| 9 460 610 041 | 104740-3320 | WP-212 C-11~C-12 | 9 460 610 182 | 104740-0113 | WP-212 B-2 |
| 9 460 610 042 | 104740-3330 | WP-212 C-13~C-14 | 9 460 610 187 | 104740-3610 | WP-212 D-4~D-5 |
| 9 460 610 043 | 104740-3410 | WP-212 C-16 | 9 460 610 191 | 104748-0163 | WP-212 E-6~E-8 |
| 9 460 610 046 | 104740-3570 | WP-212 D-3 | 9 460 610 193 | 104748-0244 | WP-212 E-12~E-14 |
| 9 460 610 054 | 104748-0151 | WP-212 E-1~E-2 | 9 460 610 194 | 104748-2450 | WP-212 G-1~G-3 |
| 9 460 610 055 | 104748-0161 | WP-212 E-3~E-5 | 9 460 610 195 | 104749-2230 | WP-212 G-11~G-12 |
| 9 460 610 059 | 104748-2150 | WP-212 F-3~F-4 | 9 460 610 204 | 104740-2080 | WP-212 B-14~B-15 |
| 9 460 610 061 | 104748-2170 | WP-212 F-5~F-6 | 9 460 610 205 | 104740-3640 | WP-212 D-8~D-9 |
| 9 460 610 063 | 104748-2290 | WP-212 F-7~F-8 | 9 460 610 206 | 104740-3650 | WP-212 D-10~D-11 |
| 9 460 610 065 | 104748-2310 | WP-212 F-9~F-10 | 9 460 610 207 | 104740-3660 | WP-212 D-12~D-13 |
| 9 460 610 067 | 104748-2380 | WP-212 F-11~F-12 | 9 460 610 210 | 104740-3620 | WP-212 D-6 |
| 9 460 610 069 | 104748-2400 | WP-212 F-13~F-14 | 9 460 610 211 | 104740-3630 | WP-212 D-7 |
| 9 460 610 078 | 104749-3000 | WP-212 G-13~G-15 | | | |
| 9 460 610 095 | 104740-3430 | WP-212 D-1 | | | |
| 9 460 610 096 | 104740-3541 | WP-212 D-2 | | | |
| 9 460 610 100 | 104740-1120 | WP-212 B-3 | | | |
| 9 460 610 101 | 104740-1130 | WP-212 B-4 | | | |
| 9 460 610 102 | 104740-1140 | WP-212 B-5 | | | |
| 9 460 610 103 | 104740-2041 | WP-212 B-6~B-7 | | | |
| 9 460 610 104 | 104749-1060 | WP-212 F-16 | | | |
| 9 460 610 106 | 104749-1180 | WP-212 G-5 | | | |

Table of Contents (DKKC No. — BOSCH No.)

| DKKC No. | BOSCH No. | Location | DKKC No. | BOSCH No. | Location |
|-------------|---------------|------------------|-------------|---------------|------------------|
| 104740-0111 | 9 460 610 022 | WP-212 B-1 | 104748-0161 | 9 460 610 055 | WP-212 E-3~E-5 |
| 104740-0112 | 9 460 610 130 | WP-212 B-1 | 104748-0163 | 9 460 610 191 | WP-212 E-6~E-8 |
| 104740-0113 | 9 460 610 182 | WP-212 B-2 | 104748-0174 | 9 460 610 173 | WP-212 E-9~E-11 |
| 104740-1120 | 9 460 610 100 | WP-212 B-3 | 104748-0244 | 9 460 610 193 | WP-212 E-12~E-14 |
| 104740-1130 | 9 460 610 101 | WP-212 B-4 | 104748-1190 | 9 460 610 178 | WP-212 E-14 |
| 104740-1140 | 9 460 610 102 | WP-212 B-5 | 104748-2071 | 9 460 610 013 | WP-212 E-15~E-16 |
| 104740-2041 | 9 460 610 103 | WP-212 B-6~B-7 | 104748-2091 | 9 460 610 014 | WP-212 F-1~F-2 |
| 104740-2051 | 9 460 610 125 | WP-212 B-8~B-9 | 104748-2150 | 9 460 610 059 | WP-212 F-3~F-4 |
| 104740-2060 | 9 460 610 132 | WP-212 B-10~B-11 | 104748-2170 | 9 460 610 061 | WP-212 F-5~F-6 |
| 104740-2070 | 9 460 610 133 | WP-212 B-12~B-13 | 104748-2290 | 9 460 610 063 | WP-212 F-7~F-8 |
| 104740-2080 | 9 460 610 204 | WP-212 B-14~B-15 | 104748-2310 | 9 460 610 065 | WP-212 F-9~F-10 |
| 104740-3090 | 9 460 610 032 | WP-212 B-16 | 104748-2380 | 9 460 610 067 | WP-212 F-11~F-12 |
| 104740-3210 | 9 460 610 035 | WP-212 C-1 | 104748-2400 | 9 460 610 069 | WP-212 F-13~F-14 |
| 104740-3220 | 9 460 610 036 | WP-212 C-2 | 104748-2450 | 9 460 610 194 | WP-212 G-1~G-3 |
| 104740-3250 | 9 460 610 037 | WP-212 C-3~C-4 | 104749-1020 | 9 460 610 015 | WP-212 F-15 |
| 104740-3260 | 9 460 610 038 | WP-212 C-5~C-6 | 104749-1060 | 9 460 610 104 | WP-212 F-16 |
| 104740-3270 | 9 460 610 039 | WP-212 C-7~C-8 | 104749-1170 | 9 460 610 016 | WP-212 G-4 |
| 104740-3280 | 9 460 610 040 | WP-212 C-9~C-10 | 104749-1180 | 9 460 610 106 | WP-212 G-5 |
| 104740-3320 | 9 460 610 041 | WP-212 C-11~C-12 | 104749-1350 | 9 460 610 107 | WP-212 G-6 |
| 104740-3330 | 9 460 610 042 | WP-212 C-13~C-14 | 104749-1360 | 9 460 610 108 | WP-212 G-7 |
| 104740-3360 | 9 460 610 003 | WP-212 C-15 | 104749-1510 | 9 460 610 115 | WP-212 G-8 |
| 104740-3410 | 9 460 610 043 | WP-212 C-16 | 104749-1580 | 9 460 610 122 | WP-212 G-9 |
| 104740-3430 | 9 460 610 095 | WP-212 D-1 | 104749-1590 | 9 460 610 123 | WP-212 G-10 |
| 104740-3541 | 9 460 610 096 | WP-212 D-2 | 104749-2230 | 9 460 610 195 | WP-212 G-11~G-12 |
| 104740-3570 | 9 460 610 046 | WP-212 D-3 | 104749-3000 | 9 460 610 078 | WP-212 G-13~G-15 |
| 104740-3610 | 9 460 610 187 | WP-212 D-4~D-5 | | | |
| 104740-3620 | 9 460 610 210 | WP-212 D-6 | | | |
| 104740-3630 | 9 460 610 211 | WP-212 D-7 | | | |
| 104740-3640 | 9 460 610 205 | WP-212 D-8~D-9 | | | |
| 104740-3650 | 9 460 610 206 | WP-212 D-10~D-11 | | | |
| 104740-3660 | 9 460 610 207 | WP-212 D-12~D-13 | | | |
| 104740-4311 | 9 460 610 163 | WP-212 D-14 | | | |
| 104748-0050 | 9 460 610 171 | WP-212 D-15~D-16 | | | |
| 104748-0151 | 9 460 610 054 | WP-212 E-1~E-2 | | | |